Plate 1.

GOLDEN EAGLE—*A'quila chrysa'etus.*

Length, 32 in. to 36 in.; wing, 24 in. to 27 in.

[ACCIP'ITRES: Falcon'idæ.]

FRONT

BRITAIN'S BIRDS AND THEIR NESTS: DESCRIBED BY A. LANDSBOROUGH THOMSON

WITH INTRODUCTION

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ILLUSTRATED WITH 132 DRAWINGS IN COLOUR

BY

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PREFACE.

The main reason for the publication of this book is Mr Rankin's magnificent series of 132 coloured plates of British-nesting birds. The series includes nearly all the species which nest in the British Isles in appreciable numbers, and a few rarer birds of special interest. No rigid rule has been followed in the selection, and the reasons for inclusion or exclusion vary from case to case. Where numerical importance was not a decisive factor, the question was usually determined by the presence or absence of points of special interest. Somewhat uncommon birds are thus often excluded because near relatives more frequently met with have already found places, while much rarer species are included because they are the sole representatives of their respective groups.

Each plate shows the adult male in full plumage. Important differences in this respect between the sexes are briefly indicated in the text; if very marked, the female is also shown in the plate. The characteristic variations in plumage caused by age and change of season are also referred to. In addition to the bird, the nest is portrayed; if it is of such a nature that the eggs are not visible *in situ*, an egg, drawn on the same scale, is given as an inset. As nestlings could not be shown as well as eggs, two special plates have been added to make good the deficiency (see pp. 89, 225). Convenience has in several cases necessitated the portrayal of birds under somewhat unusual circumstances; the most important cases are those of the various Ducks, where the male is shown beside the nest (see p. 134).

Under each plate is given the ordinary English name of the species, the place which it occupies in the system of classification followed in the text, and two measurements to give an idea of the scale on which the bird is drawn. These are (1) the length in inches from the tip of the beak to the tip of the tail; (2) the length from the carpal joint (the 'shoulder' of the wing) to the quill-tips—the greatest length of the wing when measured in the position of rest. The figures are average measurements for adult males according to a standard authority. In most species the females are slightly smaller. Great disparity, or differences in the reverse direction, are usually mentioned in the text.

The purpose of the text is to give in popular language an account of the natural history of British-breeding birds, considered as such. The list is complete, and includes birds which nest only exceptionally in our islands, or which formerly nested here but no longer do so. Birds only *suspected* of having nested in Britain are mentioned within brackets under the head of some allied species. The birds receiving lengthy treatment correspond roughly to those to which plates have been allotted; but items of special interest or importance, and the inclusion or omission of near relatives, have been important factors in determining whether a species should be fully described or not. It is explained (on p. 227) why the descriptions of the birds of the great Order, *Passeres*, are usually shorter than those in the earlier part of the volume.

In planning the chapters, uniformity has been deliberately avoided, rather than aimed at, but each chapter describing a British-nesting bird will be found to contain a general account of the species and a more detailed description of its nest and eggs. A great many general

problems—both as regards nesting and other points—have been discussed under appropriate species.

An arrangement based on a scientific classification was considered the only rational one for the purpose. The system and nomenclature adopted are those followed in Howard Saunders's *Manual of British Birds* (2nd ed. 1899). The sequence has, for convenience in treatment, been reversed, and slightly altered in detail. The various groups, however, have been in no way split up, and a statement of the *relevant* general characteristics of each group is given under the head of the first member, or else that member is treated as a type. (It must be understood that these characteristics are *not* those on which the classification is based.)

It has been thought advisable not to burden the text with references to authors and works little known to the general reader. I have here, however, to acknowledge indebtedness to the large number of authorities which have been consulted. A small part of the information is based on unpublished records of my own or on those of fully competent observers among my personal friends. To such friends, and also to those who have in any way assisted in the preparation of the book, my best thanks are due.

A. L. T.

Old Aberdeen, Scotland.

INTRODUCTION.

THE STUDY OF BIRDS.

To those who are fortunate enough to have in any measure the spirit of the naturalist—as we see it, for instance, in types so different as Gilbert White, William Macgillivray, and Charles Darwin—nothing is common or unclean. They have a curiosity that is catholic in its tastes; they have 'a love exceeding a simple love of things that glide in grasses and rubble of woody wreck,' and they have a conviction that everything is equally wonderful if we only know enough about it. At the same time, it must be admitted that living creatures differ in their accessibility; that some stimulate our interest more readily than others; that those whose lives present many analogies to our own have a peculiar fascination; and that some have been wrapped up so closely with human life that associations have added greatly to their natural appeal. On these grounds, and on many others, the study of birds has had for several centuries many devotees in this country, and it appeals to-day to a more varied constituency than any other department of natural history. As it is one of the most wholesome, educative, and enjoyable of studies, every one must wish that the ranks of bird-lovers may be increasingly recruited; but one must also wish that the study will continue to widen the scope of its inquiries, keeping in touch with the general progress of biological science. And it is from the point of view of a general biologist—the only one possible to me where birds are concerned—that I have written this brief Introduction to

Mr Rankin's beautiful pictures and my son's text. It may be useful to emphasise what is so often illustrated in the body of the book, that the study of birds is very wide and very deep—going far beyond and far below the recording of occurrences and the observation of movements, important and indispensable as these and similar inquiries are.

Representative Character of British Birds.

Allusion has often been made to the fact that Britain is very favourably situated for the study of birds. It is not merely that the list of 'British birds'—now reaching a total of 442 species or thereby—is a very respectable list for two small islands, though it is small compared with the world-list of 19,000 or so; it is rather that we get such a representative sample of the whole, and that many of our species are happily abundant and very accessible to study. The modern Carinate birds ('keeled,' and usually flying) are, according to the scheme followed in this work, classed into nineteen natural Orders:

1. * Alcæ—Auks.
2. * Pygopodes—Divers and Grebes.
3. * Tubinares—Petrels, Albatrosses, &c.
4. Sphenisci—Penguins.
5. * Laviæ—Skuas, Gulls, &c.
6. * Limicolæ—e.g. Plovers, Sandpipers, Snipe.
7. * Grallæ—Rails, Cranes, and Bustards.
8. * Gallinæ—e.g. Grouse, Pheasants, Hoatzin.
9. Tinami—Tinamous.
10. * Columbæ—Pigeons.
11. * Anseres—Ducks, Geese, and Swans.
12. * † Odontoglossi—Flamingoes.

† One species is an accidental visitor to Britain, but none is indigenous.

13. * Herodiones—e.g. Herons, Storks, and Ibises.
14. * Steganopodes—Pelicans, Cormorants, and Gannets.
15. * Accipitres—e.g. Eagles, Hawks, and Vultures.
16. * Striges—Owls.
17. * Picariæ—e.g. Goat-Suckers, Cuckoos, Rollers, Kingfishers, Woodpeckers, Humming-birds, and Swifts.
18. Psittaci—Parrots.
19. * Passeres—e.g. Thrushes, Finches, Swallows, Crows, and Larks.

An asterisk has been placed opposite the Orders with British representatives, and the striking fact is at once evident that only the Penguins, Tinamous, and Parrots are unrepresented. It may go without saying, however, that many important *families* of birds are not known in Britain, such as Pelicans, Hornbills, and Humming-birds.

Study of Structure.

It is the study of the *living* bird that attracts most minds, and there is certainly enough in this to keep a man busy all his life; but half of the wonder will be missed if there is not also some analysis of structure. Some of the foundation-stones of scientific ornithology were laid by William Macgillivray, and he was never tired of insisting that field-work and laboratory-work should go hand in hand. Every ornithologist of distinction would say the same. A beginning, at least, is not a great deal to ask—to utilise the dead birds thrown up with the other jetsam of the seashore: to see something of the lie of the parts in the body—heavy organs below and light above: to learn something about the highly developed muscular system, for instance: to work into the details of the skeleton, so delicately built on the hollow-

girder principle; to discover in the skull, sometimes most beautifully cleaned up by small crustaceans, an index—perhaps the most trustworthy of many—to the bird's blood-relationships.

In a recently published anatomical investigation it is shown that the heart of the Ptarmigan, which is a bird of the mountains, is in certain respects distinctly stronger than the heart of its first cousin, the Willow-Grouse, which is a bird of the lowlands; and in a working out of this interesting adaptation to the strain of living at high altitudes, we have an instance of the thousand and one contributions which precise anatomy has made to a deeper understanding of the bird and its life. The case we have just mentioned illustrates what is certainly part of the pleasure of 'structural analysis,' whether it be in taking a beautifully made mechanism—a watch or a motor-engine—to bits, or in dissecting out the structure of a bird. The pleasure is partly that of discovering how the structure is suited to the activity, and this is true in regard to both mechanism and organism. But to this has to be added, in the case of the organism only, that the study of structure throws light on blood-relationships. To take a simple case: we clean up the leg of a Red-throated Diver which has been drowned in a fishing-net and thrown up on the shore. Just above the knee we find a remarkable spur-like projection from the top of the main bone of the lower leg; to this (cnemial crest of the tibia) strong muscles are fastened, and a simple experiment in the process of cleaning-up shows that the structural peculiarity gives the leg an unusual leverage in striking the water. Now in Grebes, which are related to Divers, we find the same kind of lever-arrangement—the same and yet different, for the knee-pan or patella, which is very small in Divers, is large in Grebes. And the

interest increases when we learn that Hesperornis, one of the ancient toothed-birds (of Cretaceous times) had a similarly effective spur, but made in a slightly different way from that seen in either Diver or Grebe. The resemblance is deep enough to link the modern Divers and Grebes (Colymbidæ) to the Hesperornis of the Chalk; but the details of the adaptation are different in the three cases.

Study of Everyday Functions.

Another line of study is that which inquires into the everyday activities of the bird's body; and although this requires specialised training and methods if it is to be followed far, no serious student of birds can afford to ignore it, and there is much to be discovered by the ordinary observer who is humble enough to be patient and precise. Let us take an illustration. Birds often drink considerable quantities of water. How do they get rid of this? They certainly do not sweat, and there is almost no water in the waste that they void. The usual answer to this question is that there is a sort of 'internal perspiration' in the beautiful, soap-bubble-like air-sacs which surround the lungs and are directly connected with them. These very characteristic sacs, which are often continued into the bones, are certainly not of much importance in lightening the bird; they help to increase the high respiratory efficiency of the lungs (in a way which cannot be very briefly explained), and by their 'internal perspiration' they seem to help in the regulation of the temperature of the body. It is evident that a problem of this sort — for it is by no means finished yet — will require some expert physiological skill.

On the other hand, one would think that patience and a little ingenuity would suffice to throw some much-

needed light on the significance of the preen-gland. As Mr Pycraft points out in his delightful and valuable *History of Birds* (1910), many difficulties confront the view that birds use the secretion of the preen-gland as a sort of lubricant feather-oil. Many birds that have a well-developed oil-gland 'could not possibly take up and spread so much as one drop of the precious fluid.' The Scissor-bill (*Rhyncops*) with its paper-knife-like jaws may serve as an example. On the other hand, many birds that have no oil-gland—e.g. many Pigeons and Parrots—keep their feathers in first-rate order. These are two out of the many difficulties that confront the orthodox view, and we need not mention more, for our point here is not to argue about this particular problem. We merely take this as an instance of the many gaps in our knowledge, and of a kind of gap which it should not be very difficult to fill.

Another instance may be found in connection with the sense of smell in birds. In most cases it seems to be weakly developed; in some cases, such as the South American Vultures, it seems to be quite absent; only in a few cases, such as the Blackbird and the Owl, has it been experimentally proved. Yet it is well known that many birds seem to be extremely sensitive to the odour of the human hand, forsaking their nest if the eggs have been handled. It ought to be possible to solve a simple problem of this sort by devising a few experiments and carrying them out with patience.

External Activities.

Another line of inquiry, more accessible perhaps to the field-naturalist, opens up when we pass from the internal economy of the body to the external activities

of the bird. In flight alone there are problems to keep investigators at work for many years to come, and there is a further incentive in the likelihood that a more penetrating study of bird-flight would result in practical hints concerning what is somewhat grotesquely called 'human aviation.' Speaking as a general biologist, I confess to finding a peculiar fascination in that mode of flight which is called 'sailing' or 'soaring,' to which reference is made in the pages that follow. The fascination is partly due to the fact that this kind of flight is still to some extent an unsolved problem; it is also due to the impression that here one is face to face with the greatest locomotor triumph that life has achieved.

If we take a readily accessible and authoritative account of the facts, such as Professor C. S. Roy's article on Flight in Newton's *Dictionary of Birds*, we find that sailing is mostly exhibited by big birds, whose sail-area is large in proportion to the total weight—e.g. Raven, Pelican, Stork, and Albatross; that a certain amount of wind appears to be essential; and that the sailing-bird, 'with motionless outstretched wings, describes in its flight curves or circles which lead it to sail alternately up the wind and down the wind.'

There may be 'internal work' in keeping the sails taut; but as there are no active wing-strokes for long periods (one expert observer said not for three-quarters of an hour!), the problem is how the heavy bird can keep itself aloft; can progress close in the eye of the wind; can rise and fall and rise again; can turn on its course and curve back upon it again, as the albatross certainly does around the ship. Of course, the problem has been often tackled by physicists and ornithologists, and various theories have been suggested—for instance, the theory that the sailing-bird utilises upward currents of air, such as we see illustrated

when a gull flying seawards meets just over the cliff-edge a strong up-current, and sails most triumphantly upwards and onwards. We need not go into the question further, for our purpose is simply to point out that it is not difficult to watch sailing Crows and sailing Gulls with a field-glass, that they *seem* to describe circles or ellipses without detectable wing-strokes, and that this is one of the many unsolved problems of flight. The way of the Eagle in the air is still too hard for us, and if it be shown that the wonder was made by misobservation more wonderful than it really is, there is the gain of removing a common sight from the category of the obscure and marvellous to the category of the intelligible and wonderful.

Study of Behaviour.

The study of behaviour is in many ways the most attractive of all, but at the same time one of the most difficult. We refer not to the difficulties of precise observation and faithful recording of what takes place, but to the difficulty of avoiding a mixture of inference with observation, and to the difficulty of drawing the correct inference when the observations are complete. One observer is too generous, reading his own intelligence into the bird, another is too niggardly, reducing the bird to the level of an automatic machine. The recent developments of photography have made it possible to have, for instance, a complete cinematographic record of a bird's behaviour in feeding its young; but the difficulty is to get mentally near enough to the bird to understand how much it understands. One of the sure ways of attacking the problem is that which has been followed with conspicuous success by Professor Lloyd Morgan (see his *Habit and Instinct*), who incubated the eggs of birds in the laboratory, and then

studied the behaviour of the young birds, uninfluenced by all education and example. In his clear-cut experiments he showed, for instance, that the newly hatched chick has a very open mind, with few intuitive perceptions—not even of water as suitable for drinking, nor of the meaning of its unseen mother's cluck, and very few instinctive prejudices, for it gorged itself with 'worms' of red worsted. Without doubt, this line of investigation requires to be followed farther; it is sure to lead to interesting results. Moreover, it is a pleasant path to pursue.

Particular Problems: Migration.

Another form of bird-study is that which concentrates attention on one particular problem of behaviour, such as migration. Every one who has looked into the matter at all must have discovered that certainties in regard to the migration of birds are few. Some broad facts are well established; but how little is known of the paths followed, of the order observed, of the velocity and altitude, of the return to old quarters. To what extent is migratory activity instinctive—what immediate stimuli prompt the autumn emigration from our shores and the return in spring? How did the habit begin? How is the way-finding to be regarded? It is a good rule in scientific inquiry to attack the more commonplace questions first; to ask, for instance, not How do the birds find their way? but What way do they find? Much has been done by careful observation and recording; much has been done by the systematic searching of a small area (as Gätke did in Heligoland); much has been done, notably by Mr Eagle Clarke, in utilising the remarkable data accumulated on lighthouses; much is being discovered by the 'ringing' method, most successfully followed for the last seven years

by Dr Thienemann at Rossitten. A light ring of aluminium bearing a number and an address is put on the foot of a captured, uninjured bird, which is then set free; the recovery of the ring—in a small percentage of cases—supplies an item of precise information in regard to migrational movements.

Study of Development.

To follow the individual development of the bird within the egg—to see it 'climbing up its own genealogical tree'—requires technical methods and skill beyond the reach of the ordinary observer. But that is no reason why he should not share in the study of development. The study of nestlings and young birds has only begun, and it is a study as fascinating as it is promising. Mr Pycraft has recently shown how much scientific interest there is in looking into the mouths of fledglings, and there are many peculiarities of juvenile structure and behaviour that demand investigation. There is still much to be done in continuous observation of plumage changes in growing birds. And even if the observer cannot penetrate with success into the secret processes going on within the shell, there is much on the outside that will keep him thinking for many a day. These rows of eggs, lying in such perfect order in the cabinet, suggest a finished, scientific task; but, if we may use such a phrase, they bristle with unsolved problems—e.g. as regards shape and size, colour and markings.

Evolution of Birds.

The study of birds reaches its highest level when it asks the evolutionist's questions—Whence and how? There was a time, as every one knows, when there were

no birds on the face of the earth; when the warm-blooded creature (whether bird or mammal) had not yet been evolved. The oldest known bird, *Archæopteryx*, dates from the Jurassic age; but it cannot possibly have been the first bird, being in many respects already highly evolved along the avian line. On the other hand, it had many reptilian features—such as the lizard-like tail, the clawed fingers, and the teeth in the jaws—and is one of the striking evidences of the reptilian origin of birds. For in spite of all the apparent dissimilarity between the grovelling reptile and the bird of the air, that the two types are bound together in blood-relationship is proved up to the hilt by detailed resemblances in structure (from such trivial things as the scales on the bird's feet to fundamental agreement in skull-architecture); by close resemblances in the development of bird and reptile (for it is not till the sixth day that the unhatched chick, for instance, leaves a track precisely parallel to that of the unhatched reptile, and diverges on a path of its own); and by the existence in the distant past of flying reptiles and reptile-like birds. Zoologists are unanimously convinced that birds evolved from some extinct reptilian stock, but from which no one can tell—whether from pterosaurs or dinosaurs, or from an ancestry common to both, or from some other prolific line. In this connection, it may be mentioned that it is by no means to be supposed that the 'finds' of extinct connecting links have come to an end. It may be, for instance, that among the reptilian remains buried in, let us say, the Elgin Sandstones, a clue to the pedigree of birds may yet be found. There can be no doubt, for instance, of the suggestiveness of a remarkable type called *Scleromochlus taylori*, recently discovered by Mr William Taylor of Lhanbryde, a naturalist of wide scientific

interest and keen insight—a fine example of the type no longer, it is to be feared, so common in Britain as it was half a century ago.

The most important fact to be realised in regard to evolution is that it is going on here and now. The crop of variations which furnishes the raw materials of evolution is always abundant; the directive processes of natural selection and isolation are accessible to observation; and the modern methods of experimental breeding are clearing up many mysteries. We are accustomed to read the present in the light of the past; but the development of inductive evolution-lore is bringing nearer to us the power of reading the past in the light of the present.

Practical Importance of Birds.

We must bring to a close these illustrations of the many-sidedness of bird-study, but we cannot do so without alluding to practical considerations. Birds play an important part in the economy of nature, in preserving the balance of things. It is impossible to overestimate their importance in keeping injurious insects in check; without birds the earth would become uninhabitable in a few years. And besides the injurious insects destroyed, we have to remember the snails and slugs. Sometimes careful inquiry shows that the benefit is subtler than appears on the surface; thus the Pied Wagtail is very fond of the freshwater snails (*Lymnæus truncatulus*), the first hosts of the liver-flukes that cause the serious and important disease of 'rot' in sheep. Many birds distribute the seeds of useful plants and of weeds as well, and those that are scattered have to be distinguished from those that are digested. Darwin made a study in his supremely careful fashion of what may be called 'the fauna

and flora of birds' feet,' showing that numerous seeds of plants and germs of animals are carried from watershed to watershed in the balls of mud attached to the feet of aquatic birds. From one clodlet on one bird's foot no fewer than eighty seeds germinated. Cases like this make us feel that a bird cannot fall to the ground without sending a throb through a wide circle. The economic importance of birds—especially in connection with agriculture, fruit-growing, and gardening—is a subject urgently requiring further study, which a British Association committee has been recently seeking to stimulate. Apart from a few valuable documents—notably Mr Newstead's report on *The Food of Some British Birds*, published by the Board of Agriculture—the evidence on which birds are condemned as injurious is often of the flimsiest description. Whatever the verdict may be, it should rest on a broad basis of fact—on the examination of numerous birds from different parts of the country, and throughout the year. Our experience in this kind of inquiry has convinced us of the danger of condemning more than a very few birds in Britain. Notable in the short black list are three: the Wood-Pigeon, the House-Sparrow, and the Carrion-Crow. The vast majority of birds are directly beneficial; a large number levy a tax, but do far more good than harm; and of those which certainly do harm (especially at particular times of the year, and in particular areas where they become very numerous) it must be admitted that there is often much to be put on the other side of the account.

Our point in this Introduction is simply to suggest that the problem of the food of birds is one which urgently requires more widespread and sustained study. In a previous paragraph we appealed for the co-operative study of bird-migration—a problem of purely theoretical interest;

we wish to do the same for this practical problem of the economic value of birds.

One thing is certain, that birds should always get the benefit of the doubt, and that an order for destruction should be preceded by an order for examination. In illustration of this, I may be allowed to quote a very instructive instance which I owe to my friend Mr W. P. Pycraft of the British Museum. In the *Emu* for 1908, Mr A. H. F. Mattingley tells that on the Murray River swamps and 'billabongs,' and on certain lakes, Cormorants are now found nesting in hundreds, where they were formerly in *thousands*. Owing to ruthless destruction by persons seized with the idea that they were benefiting fishing by destroying 'shags,' but a tithe remain. Bitter complaints are now made of the scarcity of fish. This is due to the fact that the areas in question are the spawning-grounds of the food-fishes, and this spawn is now devoured by myriads of crabs and other crustaceans, by turtles, and by eels and other fishes. Later on these creatures batten on the fish-fry. The Cormorants, it is now discovered, fed on the *crabs* and *eels*; hence the destruction of the Cormorants has meant the removal of two checks on the increase of these undesirables. During the time the Cormorants were breeding the bulk of their food consisted of crabs, the spawning-fish being too large to swallow. In these swamps *Phalacrocorax melanoleucas*, *P. carbo*, and *Plotus novæhollandiæ* swarmed, sure of a rich food-supply for their young. In proportion as the ranks of the Cormorants were thinned, the ranks of the crabs, eels, and other spawn-eaters increased. This case seems to us to point with great clearness to the obvious conclusion that before we seek to control nature by drastic measures we should first of all get a grip of the facts, and that

demands a study—patient and persistent—of the Web of Life.

Many fine birds have already suffered extermination; not a few are on the brink. Every lover of birds must therefore welcome the efforts that are made towards bird-protection—partly by legislation, partly by the education of public opinion (e.g. as regards the use of feathers in decoration other than those from domesticated birds, like the ostrich, and from birds shot for food), and partly by the establishment of bird-sanctuaries, some of which have already been attended with remarkable success. For when a bird has been exterminated its loss is irreparable. As Mr Beebe says in his beautiful book *The Bird* (1907): 'Let us beware of needlessly destroying even one of the lives — so sublimely crowning the ages upon ages of evolving; and let us put forth all our efforts to save a threatened species from extinction; to give hearty aid to the last few individuals pitifully struggling to avoid absolute annihilation. The beauty and genius of a work of art may be reconceived, though its first material expression be destroyed; a vanished harmony may yet again inspire the composer; but when the last individual of a race of living beings breathes no more, another heaven and another earth must pass before such a one can be again.'

J. ARTHUR THOMSON.

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Plate 2.

PUFFIN—*Frater'cula arc'tica.*

Length, 13 in.; wing, 6 in.

[AL'CÆ: Al'cidæ; Fraterculi'næ.]

BRITAIN'S BIRDS AND THEIR NESTS.

ORDER, ALCÆ (AUKS);

FAMILY, ALCIDÆ (ONLY FAMILY);

SUBFAMILY, FRATERCULINÆ (PUFFINS).

THE PUFFIN

(Fratercula arctica).

Plate 2.

OF all our sea-fowl, one of the most delightful to watch, and certainly the most amusing, is the Puffin—also known by such names as 'Coulterneb' and 'Sea-Parrot.' The squat form, the waddling gait, and the white owlish face combine to give the bird a very comical appearance; to these is added the crowning absurdity of a beak of enormous size and extravagant colouring. The effect has been aptly compared to that produced when a person assumes a false nose of exaggerated proportions and gay hue; every action, every movement, every gesture is accentuated and made ridiculous by the monstrous organ. The analogy with a false nose holds still further, for, most curious point of all, the outer sheath of the beak is assumed only for a time, and is then discarded. Each autumn it is shed in plates, and the horny excrescences on the face fall with it. Each spring it reappears in all its brilliance. In winter, therefore, the bill is of more

moderate size and of a duller colour. At that season, however, the Puffin is not a familiar bird to us, although dead ones are sometimes washed ashore. In summer the Puffin is a common bird on all suitable parts of the British coasts, the greatest break in its distribution being on the east coast of England from the Humber southwards. Lundy Island in the Bristol Channel is a famous resort; but it is on the north and west coasts of Scotland and Ireland that it is most abundant, the size of its colonies frequently defying computation altogether, or to be estimated only in millions. Nowhere in these islands is it so abundant as in the St Kilda group; the land is honeycombed with the nesting burrows, so that one sinks through at every step, disturbing the Puffins within; the slopes are covered with Puffins, each ridiculous bird framed in the entrance to its nest; the sea is dotted for miles around with Puffins—Puffins fishing and Puffins resting on the Atlantic swell; the very air is literally thick with Puffins flying in a ceaseless stream from sea to cliff laden with their spoils, and back again from cliff to sea for more. The natives of these distant isles derive no small part of their subsistence from the Puffins, taking hundreds of young ones from their burrows and skilfully snaring old ones. Further, each pair of Peregrine Falcons levies a toll of scores each season; but they are never missed!

Familiarity with the Puffin does not tend to abatement of one's amusement, for the observer finds much in its habits which is in harmony with its appearance. The Puffin, as already mentioned, commonly uses for nesting purposes a burrow in the stiff peaty soil or short turf of the less precipitous slopes of the islands or coasts on which it dwells, but sometimes a mere rock crevice suffices. The same burrows are used again and again, and when

new ones are required the birds usually dig them for themselves, the cock-bird, it is said, doing most of the work. But amusing scenes are sometimes to be witnessed when a pair of Puffins decide to take forcible possession of a rabbit's burrow and eject the rightful owners. Puffins show little shyness of man; on the contrary, they often betray a comical inquisitiveness concerning the invader of their haunts, flying up to and slowly past him, or even coming and perching on rocks close beside him. They are therefore easily caught by such means as a noose on the end of a rod, and may also be 'cornered' in their burrows; but a shrewd bite frequently awaits the hand unwarily plunged into an occupied nest.

Let us attempt for a brief moment the difficult task of taking the Puffin seriously! With great punctuality the Puffins suddenly appear at their breeding haunts towards the middle or end of spring, according to locality. The single egg is laid late in May, as a rule. It is white, with faint purplish-gray blotches, but soon becomes much soiled. Incubation lasts for more than a month, and is chiefly undertaken by the female, who is fed by her mate. The chick, which is covered with dark down, lighter on the under-parts, is fed on small fish brought, several at a time, by its parents. How they manage to catch fish while holding others in their mouths—*longways*, too—is a mystery! Three weeks more, and the young birds, not unlike adults in winter plumage, leave with their parents for the open sea. The Puffin does not so habitually sit in an upright position, with the 'shank' applied to the ground, as do the other Auks, and it certainly does not *walk* in that position, as has been stated. Generally it stands on its toes in the ordinary way, with its body held comparatively horizontal. Albino Puffins are common museum curiosities.

SUBFAMILY, ALCINÆ (TYPICAL AUKS).

THE RAZORBILL

(Alca torda).

Plate 3.

With the preceding species we began our treatment of those members of the Auk group that are found in the British Isles; but, as the Puffin and a few Pacific relatives form a separate subdivision of the group, we have thought it better to link our remarks on the Auks in general to our discussion of a more typical representative, like the Razorbill.

The Auks are confined to the northern hemisphere, breeding chiefly on sub-Arctic coasts. Their headquarters are in the north Pacific; but a number of species inhabit the north Atlantic, and four of these—three of them in large numbers—resort to the British coasts each breeding season.

The Auks obtain most of their food by diving and swimming under water, at which they are exceedingly expert. The shape of their bodies is adapted to this mode of life. The legs are placed far back, as in the Grebes and Divers, causing the birds to assume on land the familiar, almost upright position. Typically, the plumage is dark brown or black on head, neck, back, and wings, and white on the under-parts, and in winter on the throat and chin.

The Razorbill is a good illustration of the characteristics of the Auk group, of which it is the type; formerly, indeed, it was called 'The Auk,' but this name is not now applied without qualifying adjective to any single member of the order. The name 'Razorbill' is, of course, a reference to

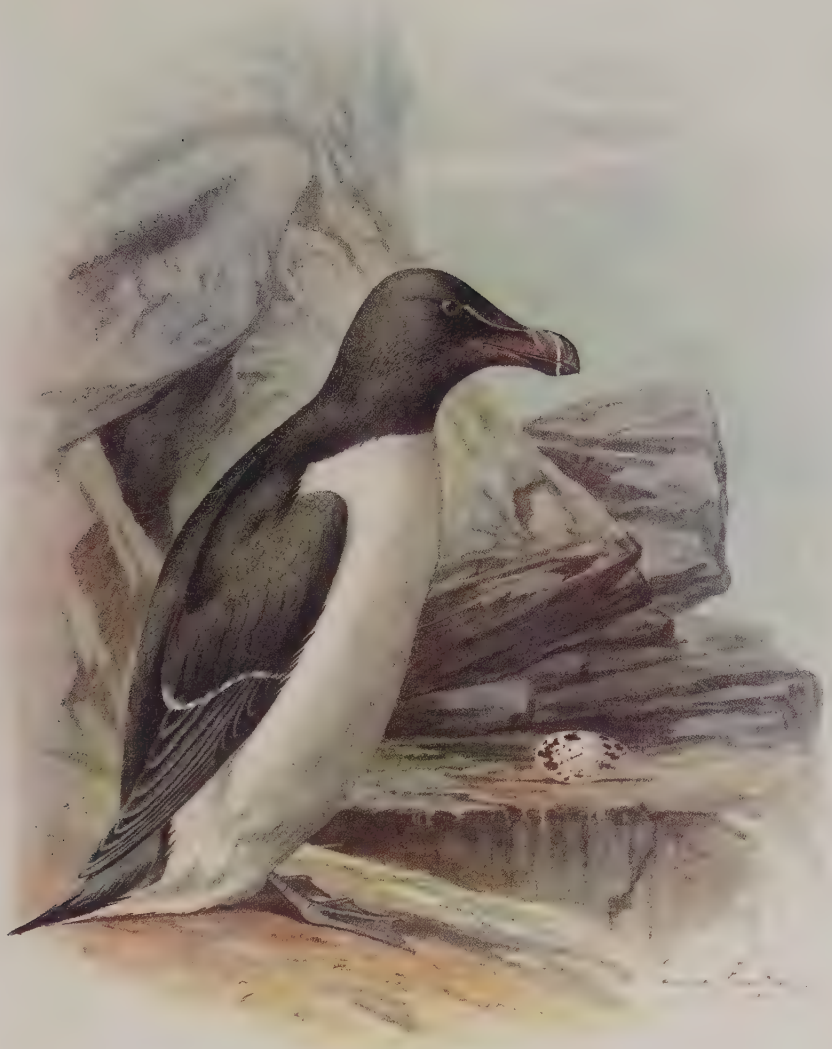

Plate 3.

RAZORBILL—*Al'ca* [illegible]

Length, 17 in.; wing, 7·3 in.

[illegible] : Al'ci[illegible]

A 4

the laterally compressed beak which is the head-mark of the species.

In winter, the Razorbill, like its allies, is chiefly a bird of the open sea, but may always be found off our coasts, and also off the coasts of countries farther south, where it is unknown in summer. But it has been remarked of the Razorbill and its allies that in spite of their commonness at sea in winter, and the huge area of ocean over which they are scattered, a large proportion of the myriads inhabiting the coasts of northern Europe in summer remain to be satisfactorily accounted for at other seasons.

On this side of the Atlantic, Brittany is the southern limit of the bird's breeding range. All round the coasts of the British Isles wherever there are cliffs, which need not be high or very precipitous, the Razorbill may be found during the breeding season. In some localities enormous colonies exist, often at the same places at which great numbers of Guillemots and Puffins also congregate, although the actual nesting, or rather 'laying,' sites chosen by the three species are different. The Razorbill generally chooses sheltered ledges. Like nearly all Auks, it has no nest, and only one egg. The latter is subject to considerable variation, but to far less than are those of the Guillemot, which are also larger and more pear-shaped. As a rule, however, the egg is grayish white or light reddish brown in ground-colour, with bold blackish blotches which frequently form a zone round the broadest part.

The Razorbill has a special interest as being a surviving relative of the Great Auk, from which it differs chiefly by its small size and the possession of powers of flight.

THE GREAT AUK, OR GARE-FOWL

(Alca impennis).

A melancholy interest attaches to the Great Auk, inasmuch as since the last two were captured on one of the Iceland skerries, sixty-five years ago, no other examples have been seen or heard of. Although it may have lingered a little longer in some of its less accessible haunts, there can be no doubt now that it has been totally exterminated. The common idea that it may yet be rediscovered in some hitherto unexplored Arctic land is based on a widespread misconception. There is no ground for believing that the Great Auk was ever an inhabitant of high northern latitudes; in fact, we have no absolutely certain record of its having ever been seen within the Arctic Circle. Plentiful remains in many parts of Ireland, in parts of Scotland and of the north of England, and in Denmark, indicate a former more southerly range; but during the period for which we have records it had a very restricted distribution, breeding only on the coasts and islands of Newfoundland, Iceland, and Norway, and on the Faroes, St Kilda, and the Holm of Papa Westray, in the Orkneys.

Although said to be extraordinarily expert in the water, the Gare-Fowl was quite incapable of flight, and was exceedingly helpless on land, as well as being tame and confiding, so that its extermination is scarcely to be wondered at. On Funk Island, one of its most important resorts on the other side of the Atlantic, the birds were regularly driven into pens and slaughtered by the sailors and fishermen for food and bait. In Scottish waters it had become rare by the end of the eighteenth century.

The last Orkney bird was got in 1813, and the only nineteenth century records from St Kilda are for 1821 or 1822, and about 1840. Strange to say, one was obtained at the mouth of Waterford harbour as late as 1834. The 1813, 1821, and 1834 birds already mentioned appear to be the only British specimens in existence; the 1840 example was destroyed as a witch by its superstitious captors!

Three islets off the coast of Iceland seem to have been the last haunts of the Gare-Fowl. One of these disappeared during a submarine eruption in 1830, and by 1844 one or both of the remaining colonies had been exterminated to satisfy the demands of collectors.

Imagine a Razorbill about the size of a goose, but with absurdly small wings, obviously useless as organs of flight, and with a conspicuous white spot in front of each eye, and you have a good idea of the appearance of the Great Auk. Apart from size, the single egg resembles that of the Razorbill, but is more variable, and sometimes has the greenish ground-colour or the curious scrollings more characteristic of the Guillemot. The lack of power of flight necessitated the choice of low islets as 'nesting'-places.

Numerous bones and some 'natural mummies' have been found on Funk Island; but most of the skins or mounted specimens—about eighty are known to exist—are of Icelandic origin. Very high prices are paid when specimens come into the market. Over seventy eggs exist in collections. One which recently changed hands fetched 210 guineas; but this price has been considerably exceeded.

It may be mentioned that the name 'Penguin,' or 'Pinwing,' now applied to an order of flightless sea-birds found in the southern hemisphere, originally belonged to the Great Auk.

THE GUILLEMOT

(Uria troile).

Plate 4.

The Guillemot is even commoner on our coasts than its ally the Razorbill; but it is more particular in its choice of 'nesting' localities, fairly high and steep cliffs being usually selected. The eggs are laid on the most exposed ledges, however, and also on the flat tops of 'stacks.' Some of the Guillemot colonies are of great size, one of the best known resorts being the cliffs near Flamborough Head, where the eggs are systematically taken by parties of four or five men, one of whom is let down with ropes by his companions. These eggs are said to be a commercial source of albumen, but it is probable that all finely marked specimens are sold to collectors or dealers, while many of the others are used locally for culinary purposes. The eggs of the Razorbill and other species found at the same places are, of course, taken at the same time.

The most noticeable difference between the Razorbill and the Guillemot lies in their bills, that of the latter being slender and dagger-like. When seen at a distance swimming on the water, the Razorbill's up-turned tail is the most obvious point of difference. The Guillemot is a clumsy bird on land; but as it rarely requires to do anything in the way of walking, it is at no disadvantage on this account. Its usual attitude on the cliffs is an upright one, with the 'shank' applied to the ground, or, strictly speaking, with the *whole foot* on the ground. Most birds stand on the toes only, so that their

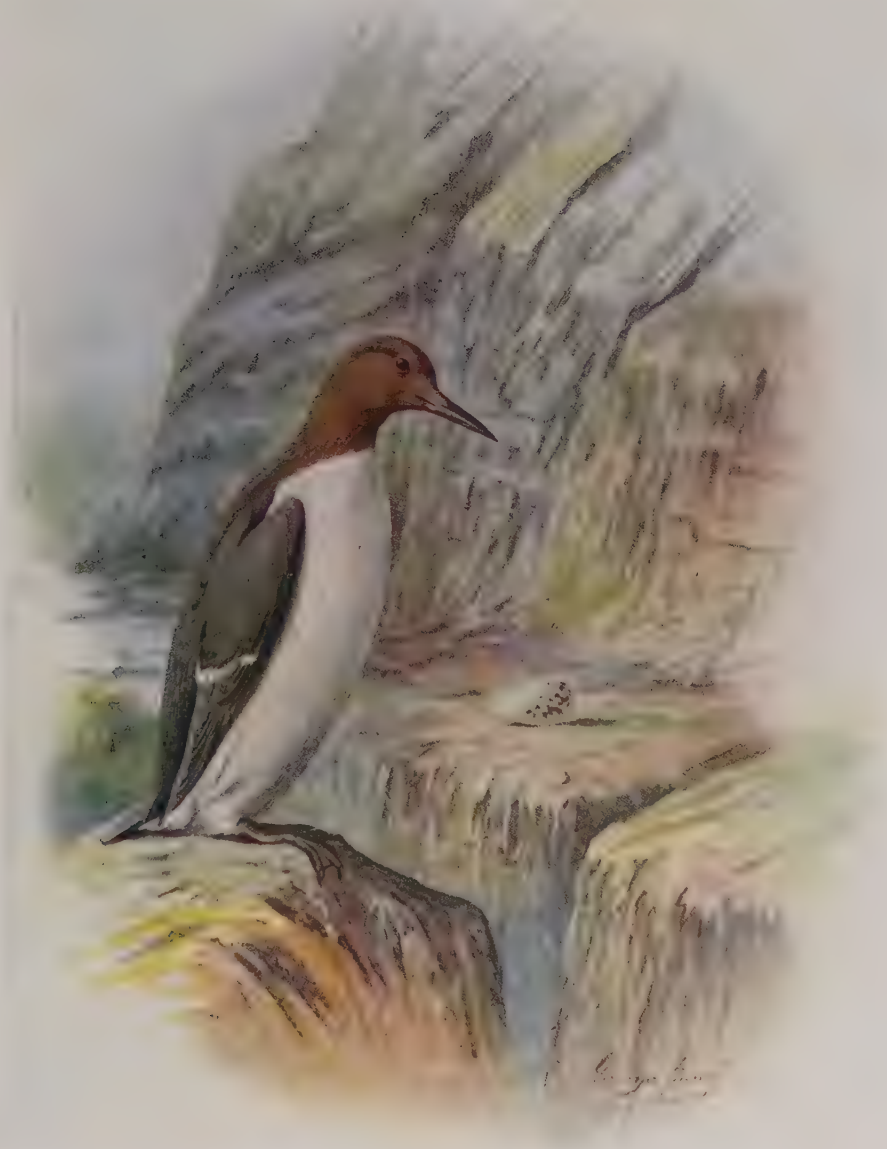

Plate 4.

GUILLEMOT—*U'ria troï'le.*

Length, 18 in. ; wing, 7·5 in.

[Al'cæ : Al'cidæ ; Alci'næ.]

ankles are at first sight mistaken for knees. The upright position is also the one in which the Guillemot incubates, standing astride of the egg, and generally facing the cliff. On the wing the Guillemot could never be called clumsy, seeing that the flight is direct and swift; but it is incapable of turning sharply, or of remaining poised on motionless wings even for a second; rapid, regular, and unceasing wing-beats are characteristic. Generally it flies a few feet above the waves, often in small parties flying in single file, the birds so close together as to appear to be almost touching. When leaving a high cliff the Guillemot first makes a steep descent to its accustomed level, and at that level seeks its destination. Of swimming, diving, and swimming under water the Guillemot is a past master. When swimming under water the wings are used, and a considerable speed is attained.

The single egg is large and pear-shaped, but is chiefly remarkable on account of the extraordinary amount of variation in colour to which it is subject. To begin with, the ground may be of almost any colour, but green tints are the commonest, from pale greenish white to deep blue-green. The markings may take the form of spots, blotches, or scrollings, and be black, reddish brown, or greenish yellow in colour, or they may be of more than one kind or one colour on the same egg. They may be large or small, evenly distributed or collected in zones or patches, few in number, or so abundant as almost completely to obscure the ground-colour. Each individual female probably always lays eggs of the same type, for it has been proved that when robbed of its first egg a Guillemot will lay a similar one the same season.

It is usually in cases where three or four eggs form the clutch that eggs are markedly pear-shaped — as in 'Waders,' for example. In such cases the shape serves

an obvious purpose—the eggs 'pack' into smaller space. Where one or two, or half-a-dozen or more, are laid, the eggs tend to be oval—for example, in game-birds—and it is sometimes impossible to say which end is which. To this the Guillemot's egg is an exception; but its shape is of use in another way. If the wind, or the departure of the incubating bird, sets the egg in motion on its narrow ledge, it is often saved by its tendency to rotate without rolling. It moves, and yet remains in one place. This can be demonstrated experimentally; but a blown egg will not answer. It is true that the eggs often fall; when startled by a gunshot the birds often leave with such haste that they precipitate a shower of eggs into the sea.

The nesting habits of the various kinds of Auks are on the whole much alike. Little difference exists between those of the Guillemot and those of the Razorbill. In speaking of Auks generally, a German naturalist-traveller, of half a century ago, gives an amusing account of these habits. 'During the brooding season their social virtues reach an extraordinary height,' he says. The males outnumber the females, according to his observations; but whilst among other birds such a disproportion gives rise to ceaseless strife, yet among these Auks peace is not disturbed. Not only do the 'bachelors' share in the duties of incubation, sitting when both parents are at sea, but their presence ensures that there will be no orphans on the cliffs. 'Should the male of a pair come to grief, his widow immediately consoles herself with another mate, and in the rarer cases of both parents losing their lives at once, the good-natured supernumeraries are quite ready to finish hatching the egg and to rear the young one.' Needless to say, these statements must be received with considerable reserve.

The young bird emerges from the egg covered with

dark-coloured down. Down-clad, but helpless, it is therefore intermediate between the young Lapwing type, down-clad and active, and the young Thrush type, naked and helpless. Active young birds on cliff ledges would, of course, be subject to frequent accidents. As it is, they leave their ledges for the sea when a few weeks old and before they can fly properly. Their method of doing so has been a subject of dispute. The statement that they are carried down on their parents' backs may be dismissed at once; but one observer has stated that young Razorbills are sometimes carried down by the neck! Most observers are, however, agreed that the usual way for young Guillemots is as follows. The young bird is led to a place convenient for jumping, and is then enticed by its parents (which repeatedly set the example of flying down from the ledge, or swim about below and call to their offspring), to half-fall, half-fly into the sea, henceforth its proper element. Sometimes, however, the young ones come to grief on the rocks at the foot of the cliffs.

The Guillemot is a bird of many names; in addition to 'Guillemot,' alone or with the epithets 'Common' or 'Foolish,' it has a number of local names. Some of these belong to the young bird only, and most of them are shared by the Razorbill. One authority gives the following list: 'Frowl,' 'Kiddaw' or 'Skiddaw,' 'Langy,' 'Lavy,' 'Murrock,' 'Murre,' 'Scout' (cf. Coot and Scoter), 'Scuttock,' 'Strany,' 'Tinker' or 'Tinkershire,' and 'Willock.'

A variety of the Guillemot known as the Ringed, Bridled, or Spectacled Guillemot, differs only in having the white round the eye very pronounced, and continued for some distance backwards as a narrow line. It is found in small numbers at most haunts of the common form, with which it appears to breed quite indiscriminately. It is not now regarded as a separate species.

THE BLACK GUILLEMOT

(Uria grylle).

The Black Guillemot and its near allies differ in so many respects from the Common Guillemot that they are often considered to be a genus by themselves. Our species is about a foot in length, and in breeding plumage is chiefly black with a greenish gloss, but has a large white patch on each wing. The legs are vermilion. In the winter plumage white predominates. It breeds locally on the west coast of Scotland, in Ireland, and on the Isle of Man, and perhaps did so formerly on both sides of England. Its chief British resorts, however, are in the Scottish isles. The Black Guillemot, with the other members of its group, differs from other Auks in having a clutch of two eggs. In most cases they are laid in the crevices of cliffs. They are usually white with black and grayish markings, but there is considerable variation.

Plate 5.

RED-THROATED DIVER—*Colym'bus septen'triona'lis.*

Length, 24 in.; wing, 11·2 in.

[PYGOP'ODES: Colym'bidæ.]

ORDER, PYGOPODES (DIVERS AND GREBES);
FAMILY, COLYMBIDÆ (DIVERS).

THE RED-THROATED DIVER

(Colymbus septentrionalis).

Plate 5.

Within a circle of frowning hills—silent, desolate, but majestic in their eternal grandeur — lies an islet-strewn lochan. A few miles to the westward the Atlantic breakers thunder against the battered skerries, or spend themselves more gradually along the windings of the fjord-like sea-lochs. To the eastward lie the troubled waters of the Minch, with the mainland heights dim purple in the hazy distance. The rocks around are among the oldest masses on the earth's surface; the hills preserve the rounded outlines modelled by the great ice-sheets, of whose passage the countless scattered boulders are also silent witnesses. Here and there, where the protecting heather and peat have been but recently swept away, the rock surface, polished and scratched, repeats the tale, while more often an older exposure, with its frost-shattered cliffs and torrent-swept gullies, tells of the power of forces still at work. It is a history in which man has played no part, and in which his present share is of the most superficial kind. The scene has a more fitting occupant in the Loon, a large bird of truly archaic type, which seems, among the more typical birds of to-day, like an old-time galleon among racing craft of modern design—a primitive form still surviving in an age of specialisation.

On our Hebridean lochan the Loon that we have to

deal with is probably the Red-throated Diver, the smallest of the four species built on these antiquated lines. It is also widely known as the 'Rain Goose,' its harsh, discordant notes being popularly supposed to foretell rain. Leaving aside the more deeply seated characteristics which lead anatomists to assign to the Loons a lowly place in the scale of bird evolution, we may find in their more obvious traits much that is primitive and archaic. On land a Loon is the most awkward of birds; it rarely stands properly upright;* it can only waddle clumsily from place to place, or, more commonly, push itself along the ground with its feet. But this matters little, for the Loon has no need to go on land except to its nest, and that is almost always at the water's edge. On the wing it is a strong flyer, but it reminds one of a primitive aeroplane — it has no great control over its movements. In starting, some time is taken in getting up sufficient 'way' to rise; in the air, flight is rapid and powerful enough, but maintained only by continuous and regular propulsion, with an occasional glide on the downgrade. Changes of level are only gradually made; changes of direction are effected by wide curves. Sharp turnings, soaring, and hovering are alike impossible, and considerable trouble and risk are involved in the process of alighting. All the evolutions require space.

The Diver's method of alighting is indeed peculiar. At sea it will come down by a long gradient—miles long, if from a great height. In narrow waters, however, the task is more difficult. A long descent in a wide spiral may first be resorted to; but the final drop is often a headlong plunge, 'accompanied by a noise for which those who have heard it will agree that thundering is too weak an epithet,' till,

* To display its plumage properly, the bird in the accompanying plate has been depicted in this rather unusual attitude.

with tremendous force, the Diver hits the water and goes shooting over the surface in a smother of spray and foam.

Nonentities on land, clumsy, out-of-date pieces of mechanism in the air, do the Loons survive merely because of lack of enemies or rivals in their wild haunts? No; they have specialised in another direction—namely, as aquatic animals. We see it at once: the whole shape of the body suggests ease in cleaving the water; the position of the legs, far back on the body, which is to a great extent responsible for the bird's awkwardness on land, suggests immense driving power; the legs themselves, 'shanks' compressed to offer a narrow edge to the water; the webbed feet, so contrived as to present the largest surface during strokes and the smallest surface between strokes, suggest the same things. And we do find that Divers are wonderfully expert in the water. Whether swimming buoyantly on the surface or half-submerged in a way which seems to defy the laws of hydrostatics, a considerable speed is attained. At diving and swimming under water Divers are adepts. Although, unlike Auks, they do not use their wings, their rate of swimming is rapid, and they can remain under water for a minute and a half or more with ease. They catch the fish they feed on by pursuing and 'spearing' them, and they elude their own enemies by long under-water swims in unexpected directions. And in the water they spend most of their lives. In winter they keep to the sea or to the larger lochs that remain unfrozen; but in the nesting season the Red-throated Diver especially shows marked preference for the smaller sheets of water, on whose edges or islets the nests are always placed. Usually, indeed, the birds have to make a daily journey to fishing-grounds with wider scope than the lochans of their choice.

The Divers as a group, and to a great extent as species,

are circumpolar in their distribution, ranging so far north that a considerable migration is necessary in autumn, at which season they show a gregarious tendency. At all seasons Red-throated Divers may be found off our coasts; immature birds chiefly, with spotted backs, or adults in the winter plumage that lacks the red throat. But it is only amid such surroundings as we have described that this species breeds. Very sparingly is it found, if now at all, in the north of Ireland, but more abundantly in the north and north-west of Scotland, from Perthshire and Argyllshire to Orkney and Shetland, and those specially favoured isles—the Outer Hebrides.

The nest, if any, is a mere untidy heap of weeds a few feet from the water's edge, and a well-marked groove usually shows where the birds are accustomed to push themselves up to their nests. The eggs are two in number, rather elongated in shape, and rich olivaceous brown in colour, with spots and blotches of umber. They are laid in Scotland in May or June, and both birds take part in incubation, lying rather than sitting on their eggs. In due course the young are hatched, and are found to be clothed in down of a sooty-brown colour, paler below. They soon abandon the nest, for they are active from the first, and from their earliest efforts show much of the agility and skill in the water which is their birthright, for it has been the saving of their archaic race.

THE BLACK-THROATED DIVER

(Colymbus arcticus).

Although, as regards numbers off our coasts in winter, this species does not come next to the Red-throated Diver, it is the only other Loon which nests in the British

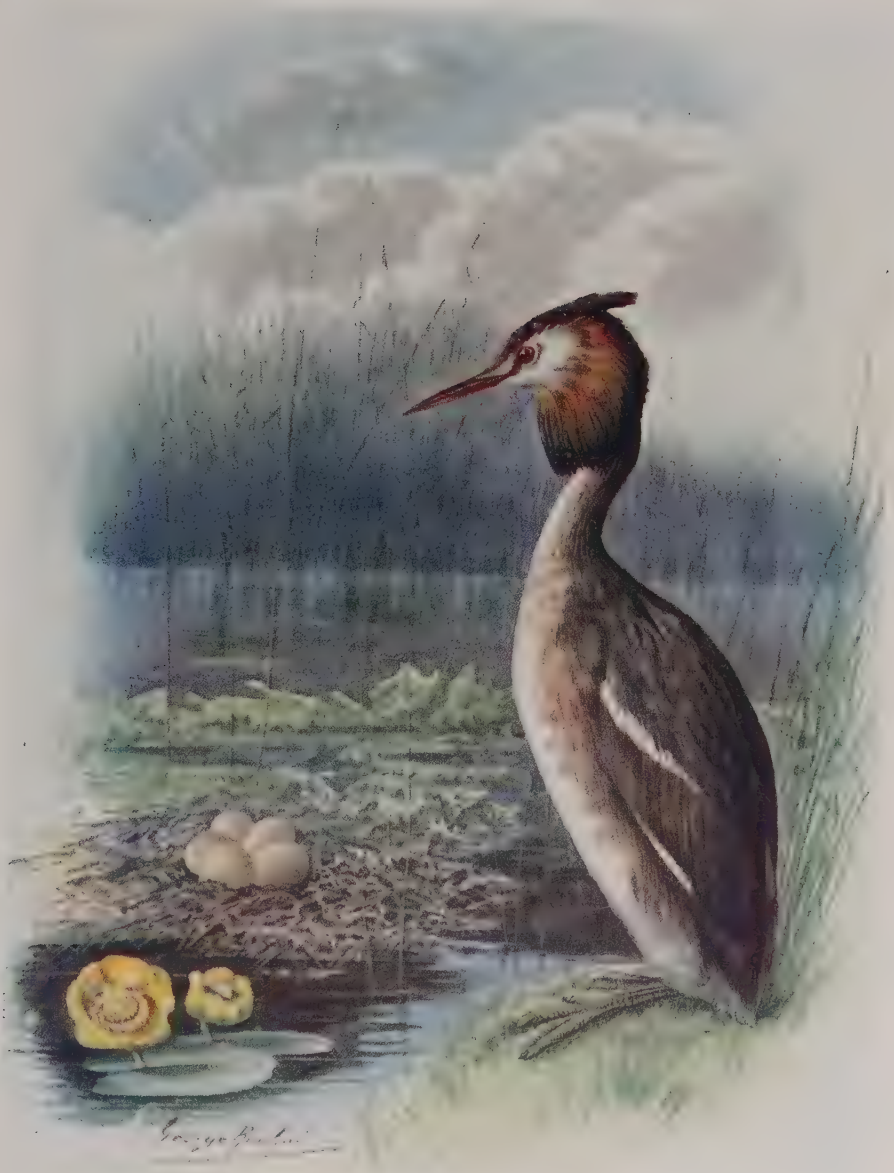

Plate 6.

GREAT CRESTED GREBE—*Podic'ipes crista'tus.*

Length, 21 in.; wing, 7·5 in.

[PYGOP'ODES: Podiciped'idæ.]

Islands. This it does in the north and north-west Highlands and in some of the Scottish isles, but much less commonly than its smaller relative. Its choice of haunts and its general and nesting habits are very similar to those of its ally, and the eggs differ little except that they are larger. The bird, too, is bigger than the Red-throated Diver, and, among other peculiarities, has, in breeding plumage, a black throat with white spots and stripes. The beaks of the two species are easily distinguishable, the Red-throated Diver's being perceptibly upturned; the other's never in the least so. The still larger Great Northern Diver takes second place in commonness as a winter visitor; but it does not remain to nest, although it *may* do so exceptionally. Its close ally, the White-billed Northern Diver, a rare wanderer to our coasts, is the only other member of this small family.

FAMILY, PODICIPEDIDÆ (GREBES).

THE GREAT CRESTED GREBE

(Podicipes cristatus).

Plate 6.

Like the Divers are their near allies the Grebes, and some of these are fairly familiar British birds. The largest and handsomest species is the true Grebe, the Great Crested Grebe of ornithologists. Scarcely inferior in size to the Red-Throated Diver, this Grebe is a considerably more graceful and less cumbrous bird, although built on very similar lines. Its flight is of the same order, and its proficiency in the water is as great. Grebes and Divers, it may be mentioned, share the backward position of the legs, the laterally compressed 'shank,' the

close, thick plumage, and other adaptations to a mainly aquatic life. Grebes, however, have characteristic lobes on the toes in place of complete webs.

The curious ornament on its head gives this species its name; but the word 'Grebe' alone really implies this, coming from a Celtic word for a comb. Though the term is now applied to the whole family, many of the members lack the ornament. In this species both sexes have the crest in summer, but it is lost in winter, and is absent from the plumage of immature birds. It is, however, never so fully developed in the female as in the male.

The Great Crested Grebe may be considered a fairly common bird over a great part of England. It may be found on small ponds and large lakes, wherever it has reed-beds in which to nest and a proper degree of freedom from molestation. Towards the north of England and through the Scottish lowlands its haunts become fewer. In the Highlands it is found on a few of the most southern lochs which are suitable to its habits, and it is showing some signs of extending its range. In Ireland it is comparatively abundant in many of the midland and eastern counties. Like the Divers, it is something of a migrant, and becomes fairly numerous on the south coast of England in winter, at which season it frequents many places, both inland and on the sea, where it is not found in summer.

The nest is a floating mass of vegetable matter moored among the reeds. The eggs, usually four in number, are at first provided with an outer white chalky layer. This wears off to a great extent during incubation and reveals the true shell, pale green in colour. The eggs are usually covered up with material such as the nest is made of, except when the bird is sitting; but this is

perhaps more for warmth than concealment. In fact, the nest is a mass of decomposing vegetable matter, and therefore evolves a considerable amount of heat. The temperature of the nest reaches 73° F. at times, and this explains how the birds can leave their eggs for half-a-dozen hours without ill effect. Both parents take their share in the duties of incubation. The chicks are covered with thick down, and are active from the first, taking to the water almost at once. In fact, while one parent is engaged in hatching the remaining eggs, the first one or two chicks are already spending most of their time swimming about under the guardianship of the other. When the old bird swims off rapidly on some alarm, the chicks attach themselves by their bills to some part of its plumage. At other times the chicks clamber on to their parent's back for a rest, or, for the same purpose, are brought back to the nest; but this is finally forsaken almost immediately after the last egg has been hatched. Two broods, however, are said to be sometimes reared in a season, the young of the first brood being driven away to shift for themselves before the second laying begins.

The down plumage of the young Grebe is very remarkable on account of a bright-red, triangular patch of bare skin on the crown of the head and the characteristic tiger-like stripes. These are alternate stripes of black and yellow, which run longitudinally the whole length of the body, and even show themselves latitudinally on the bill. They are confined to the upper-parts, the under-parts being of a more uniform pale colour.

A curious habit possessed by this and other Grebes is that of swallowing their own feathers, apparently to serve a similar purpose to that of the small stones, and so on, swallowed by most birds. These feathers are often put

up in the 'castings' of fish-bones and other indigestible portions of the bird's food. A recent observer has recorded the fact that old Grebes give their own feathers to their young, while at a later stage the young sometimes pluck their parent's feathers for themselves. The name 'Loon' is misapplied to this species in some districts.

THE BLACK-NECKED OR EARED GREBE

(Podicipes nigricollis).

The Black-necked or Eared Grebe has for long been suspected to breed exceptionally within the British Isles; but the first authenticated eggs in this country were found in 1904. Details as to locality, and so on, are rightly being withheld in order to prevent persecution by collectors. The eggs are up to five in number, and are yellowish white in colour. The nests have often solid foundations under water, and numbers may be found close together in countries where the species is common.

THE LITTLE GREBE, OR DABCHICK

(Podicipes fluviatilis).

Plate 7.

Of all the Divers and Grebes, the Dabchick is the most familiar, for it is found on streams, ponds, and lakes throughout the British Isles. In Scotland it is less plentiful than in the other countries; but even there it is found up to considerable elevations, and as far as the outlying islands. In winter most of its haunts become

Plate 7.

LITTLE GREBE OR DABCHICK—*Podic'ipes fluvia'tilis.*

Length, 9·5 in.; wing, 4 in.

[PYGOP'ODES: Podiciped'idæ.]

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more or less ice-bound, and it has of necessity to migrate —usually to the seacoast.

This species differs most markedly from the members of its order already discussed, in its small size. Apart from this, it resembles its crested congener in general character, but lacks altogether the purely decorative portions of the latter's plumage. The winter plumage differs from the summer dress chiefly in the generally duller and paler tints of the various parts. The chin, notably, becomes quite white.

The nesting habits of the Dabchick resemble those of its larger relative. The nest is very similar, for instance, and the eggs are usually covered up in the absence of the bird. Except when the danger is very close at hand, the startled bird usually pauses to pluck with great rapidity a few billfuls of reeds and lay them on top of its treasures, or merely to scrape over them with its feet material already plucked. Concealment is probably a more important object in this case, and a nest with the eggs properly covered up in this way might easily be passed over by the uninitiated as an accidental collection of flotsam. The four to six eggs are at first creamy white, but long before the end of the three weeks of incubation they become darkly stained by the materials of the nest. The chicks are striped like those of the Great Crested Grebe, but they lack the patch of bare red skin. In their habits and their early adoption of an aquatic life they are also similar. Two broods are sometimes reared in a season, and a male Dabchick has been recorded as still in charge of the first brood while the mother was already incubating the second clutch of eggs.

One curious habit common to many aquatic birds may be conveniently described in connection with the Dabchick, although we have already given it a passing mention.

This is the habit of swimming or resting in the water in a submerged or half-submerged position. A Dabchick on the approach of danger can gradually sink lower and lower in the water till its back is awash, then till only head and neck remain above the surface, and finally till only the beak protrudes. Usually the bird dives and swims under water to a safer place before this last stage is reached. But in a small pond a Dabchick has been observed trying to escape detection by remaining in one place, with only the beak appearing, and this looked so like one of the small floating objects that abounded there that the presence of the bird would not have been noticed by any one who had not seen it sink. Now, a Dabchick, or any bird for that matter, must weigh less than a quarter of the weight of its bulk of water, and will therefore, alive or dead, float buoyantly on the surface unless some considerable force be exerted on it. In the ordinary diving, which must not for a moment be confused with this submerging, the bird itself obviously exerts this force. But in the submerging we do not yet know what means are employed. Close observation of Dabchicks and others in captivity has failed to detect any motion, where violent motion appears to be a *sine qua non*. The habit is shared by Divers, Grebes, Ducks, Cormorants, and probably others, and an apparently similar phenomenon is the Dipper's walking on the bottom of a stream.

Of the Little Grebe's other powers in the water we need add nothing further, but they are familiar to most dwellers in the country, and may even be studied on many of the ornamental waters in London parks. The name 'Dabchick' is equivalent to 'Dipchick,' and is of course a reference to the bird's powers of diving and of submerging itself.

Plate 8.

STORM PETREL—*Procellar'ia pelá'gica.*

Length, 6·5 in.; wing, 4·7 in.

[TUBINAR'ES: Procellari'idæ.]

ORDER, TUBINARES (PETRELS, &c.);

FAMILY, PROCELLARIIDÆ (TYPICAL PETRELS).

THE STORM PETREL

(Procellaria pelagica).

Plate 8.

'Birds of the open sea!' It is a title applied more or less appropriately to several kinds of birds, but one which conjures up to the imagination before all others the Petrels, those birds which form the escort of ships in mid-ocean when Gulls and other such sea-fowl have long dropped astern. On all the oceans of the world some of them are to be found, and they are chief among the few flying birds that cross that expanse of encircling seas which isolates the grim Antarctic continent from the rest of the world. It is not only the thought of their months-long absences from land that lends to these birds an air of romance, nor is it only the superstitions of sailors regarding them, for they have an especial attraction and fascination for the naturalist because of the way the secrets of their lives have been kept from him. For in spite of the discoveries of recent expeditions, we remain ignorant of the very nesting-places of many species, themselves common enough on the high-seas. And this for good reasons: the wide distribution and the long journeys of these birds make the field of exploration overwhelmingly great. The nesting-places themselves may be a few unimportant islands, or a portion of ice-locked Antarctica. But even if they are in less out-of-the-way places, the fact that Petrels' nests are usually in burrows or rock crevices, and may be

high above sea-level, makes their discovery improbable till the observer has some clue to their whereabouts. And no such clue is afforded by the birds, for most of them are nocturnal, or at least crepuscular, in their habits during the breeding season.

The Petrels include many different kinds of birds, showing a great range in the matter of size, varying from the small, true Petrels to the great Albatrosses, some of which are among the largest of present-day flying birds. One peculiar characteristic is shared by all —namely, that the nostrils terminate externally in tubes along the top of the beak. These tubes are at once noticeable in a specimen; and even at a distance they give the outline of the beak an irregular appearance, by which, without further trouble, a bird is identified as a member of this order.

Although southern oceans are the headquarters of the Petrels, four different kinds nest regularly in the British Isles. But as they frequent for this purpose some outlying islands, and for the rest keep out to sea, the stay-at-home British naturalist is not likely to know them well from personal observation. During storms, however, examples of various species are not infrequently captured inland in all parts of the country.

Of the four, the most abundant is the Storm or Stormy Petrel. The Scilly Isles are its only English haunt, but it is found to a slight extent on the Welsh coast. It is most abundant, however, on the west and north coasts of Ireland and Scotland, and especially on the islands off these coasts, from the Blaskets to the Shetlands.

To these haunts the Storm Petrels come at the end of April or, more often, early in May. The nesting-sites are crevices in the cliffs, or under stones, or are burrows

excavated on the softer slopes by the birds themselves. In these burrows the birds may be easily caught once the position has been reached; but all Petrels have the unpleasant habit in such emergencies of vomiting over their aggressors a thick, oily fluid, the half-digested contents of their stomachs. Oil is indeed typical of Petrels; their bodies are very oily, and the odour of oil hangs about them and pervades their nesting-holes. A slight nest of grass, &c., is sometimes made at the end of the burrow; but this is very often dispensed with. Some of the birds begin to lay by the end of May, but incubation is not general till well on in June. Only one egg is laid, and this is pure white before it becomes soiled, which it soon does owing to the rough texture of its shell. Not uncommonly some very faint reddish specks are present, often arranged in a zone near the larger end. The Storm Petrel will lay a second and a third time if robbed, and the fact that eggs have been found in the middle of September has led to the supposition that two chicks are sometimes reared in a season. But as incubation lasts about seven weeks, and the nestling is said to take more than ten weeks to become fledged, this seems hardly possible. The nestling is at first nearly naked and helpless, but is later covered with very long black down.

Small fish and various pelagic organisms form the food of this Petrel, and fatty refuse of all descriptions is particularly sought after, the birds flying close to the surface of the sea and skimming off minute floating particles. The name Petrel, although also widely applied to the whole order, strictly belongs to this and a few allied species. It means 'little (bird of St) Peter,' and is probably an allusion to their habit of 'walking on the water'—that is, of paddling their feet in the water as they fly close to the surface.

LEACH'S FORK-TAILED PETREL

(Oceanodroma leucorrhoa).

Leach's Fork-tailed Petrel nests in the St Kilda group, in the Hebrides, and off the west coast of Ireland, and is found in winter on various parts of our coasts, and sometimes even inland after gales. In a general way it may be said to resemble the Storm Petrel in appearance and habits; but it is rather a larger bird and has a markedly forked tail. The eggs and nesting economy are not very much different. The two other Petrels which nest in the British Isles, the Manx Shearwater and the Fulmar Petrel, are easily distinguished from these and from each other.

FAMILY, PUFFINIDÆ (SHEARWATERS, &C.).

THE MANX SHEARWATER

(Puffinus anglorum).

The Manx Shearwater does not nest on the east coast of the British mainland, but does so in Orkney and Shetland, and on the west from the Hebrides to Scilly Isles, as well as round the Irish coasts. The most important colonies are on some of the Inner Hebrides. As rats have exterminated the colony on the Calf of Man, the name 'Manx' has no longer any particular significance. Briefly described, this Shearwater is a bird nearly as large as a Kittiwake, and has longish wings and a skimming flight, dark-brown upper-parts and white under-parts, and a rather long, hooked beak. It shares with its close ally, the 'Lost Soul' of the Bosphorus, the fictitious reputation of never alighting

on the water. A single white egg is laid in May on a little grass at the end of a burrow. The bird is partly nocturnal in its habits.

THE FULMAR PETREL

(Fulmarus glacialis).

The Fulmar Petrel is a bird about the size of a Common Gull, and with a very gull-like plumage. But it may be readily distinguished, even at a distance, by various points: the tubular nostrils are very conspicuous, and the flight is quite different. As with some Skuas, there is also a dark 'phase.' The Fulmar's only British nesting-places are in the Scottish isles—some of the Hebrides, and of the St Kilda and Shetland groups—and on the Scottish mainland near Cape Wrath. In winter it is found off many parts of the Scottish and English coasts, but is seldom obtained in the south of England or in Ireland. The single egg is white—occasionally slightly spotted—but usually becomes much soiled during incubation. It is laid in a hollow scratched in the turf of a ledge or steep slope on the cliffs. On St Kilda and elsewhere great numbers are taken each year for the sake of the flesh and oil.

ORDER, GAVIÆ (GULLS, &c.);

FAMILY, STERCORARIIDÆ (SKUAS).

THE ARCTIC OR RICHARDSON'S SKUA

(Stercorarius crepidatus).

Plate 9.

We now come to the Gull order, beginning with the small group of birds known from their cries as Skuas or Skua-Gulls. They are predaceous birds, with strong hooked beaks, and with sharp claws on their webbed feet. Sometimes they prey on small mammals and on young and weakly birds, but to a great extent they obtain their food by piratical means. Besides being strong and well armed, they are swift on the wing, and woe betide the gull which is caught in the open with a fish in its crop. It can only escape by disgorging its prey, upon which the aggressor immediately swoops, as likely as not catching it in mid-air. Even the Terns cannot hope to escape the swift robber.

There are seven species of Skua in all, four inhabiting high northern and three high southern latitudes. The former are all visitors on our coasts, but only two nest in the British Isles, and that only in the very north of Scotland. Of these the Great Skua is the largest and fiercest; but we must give the Arctic Skua first place owing to its greater abundance. Arctic Skuas inhabiting the more southerly portions of the species' range tend to have the entire plumage of a sooty hue; but as we proceed northwards a form with lighter underparts gains the ascendancy. All gradations between the two forms, which breed indiscriminately where they meet,

Plate 9.

ARCTIC OR RICHARDSON'S SKUA—*Stercorarius crepidatus.*

Length, 20 in.; wing, 13 in.

[GAVIÆ: Stercorariidæ.]

are found. Partly because the name 'Richardson's Skua' rightly belongs only to the dark 'phase,' and partly for the sake of brevity, the name 'Arctic Skua' is now extensively used, although it has no special appropriateness.

The Arctic Skua nests in small numbers on the most northerly parts of the Scottish mainland, and has colonies on the Hebrides, on the Orkneys, and especially on the Shetlands. It is not until the end of May that the eggs are laid. These are two in number, and have dark-brown blotches on a ground varying from chocolate to light-greenish brown. The nest is a mere hollow on the open moor or bog, and is rarely lined.

The chick is covered with dark-brown down, while birds in immature plumage lack the elongated tail-feathers, and have, in the light phase, dark bars on the under-parts.

THE GREAT SKUA

(Megalestris catarrhactes).

The Great Skua is much less common than the Arctic Skua. It appears to be most numerous on this side of the Atlantic, where its chief haunts are off the Iceland coast. It is also found in small numbers in the Faroes and in the Shetland group. In the latter it was formerly protected, because it drove away eagles from the moors it nested on, and was therefore considered a useful bird by the shepherds. In more recent times the ravages of collectors reduced its numbers; but this decrease was checked by the introduction of protection by the proprietors of Unst and Foula, the only isles on which it nested. The 'Bonxie,' as it is called there, is therefore again on the increase, and new

colonies are being formed, some of them even on other islands of the group.

As already stated, the Great Skua is a larger and fiercer bird than the Arctic Skua. The plumage resembles that of the dark form of that species, but the bases of the quills form a conspicuous light patch on each wing, and the central tail-feathers project only half an inch beyond the others. This species and the three southern Skuas are classed together in one group, and the Arctic Skua with the remaining two in another.

The Great Skua's eggs, nest, &c., are similar to those of its smaller relative, except that they are larger; but it displays more boldness in the defence of its nest, swooping at and sometimes striking the head of any one who intrudes on its haunts.

FAMILY, LARIDÆ (GULLS AND TERNS);
SUBFAMILY, LARINÆ (GULLS).

THE HERRING GULL

(Larus argentatus).

Plate 10.

Under the unlovely epithet of 'Herring Gull' ornithologists place the bird which is to most people the 'ordinary Sea-Gull.' Unfortunately the popular names 'Sea-Gull' and 'Sea-Mew' are too wide, and some cumbrous qualifying adjective is necessary if we wish to name exactly any particular species. Still more confusing is the fact that the term 'Common Gull' has come to be applied to a much less familiar bird, which our present purposes make it convenient to relegate to a subordinate place. 'Common Gull' would indeed be an

Plate 10.

HERRING GULL—*Lar'us argenta'tus.*

Length, 24 in.; wing, 17·5 in.

[GAV'IÆ: Lar'idæ; Lari'næ.]

appropriate enough name for this species, and on the score of appropriateness we have no fault to find with 'Herring Gull.' We confess, however, to a preference for some more euphonius appellation, such as the German 'Silver Mew.'* But 'Herring Gull' it is, and must, we fear, remain.

Perhaps it is on account of its commonness that we are prejudiced against it; perhaps on account of its habits, at times repulsive, as when a flock fights and screams over some foul piece of carrion among the jetsam. Whatever the reason, the Herring Gull is less admired than it deserves, for amid favourable surroundings it is a decidedly handsome bird. On the wing it looks its best, for then not only its appearance, but its skill demands our praise. Its feats of gliding and soaring, we venture to think, excel any that can be performed by other *common* British birds. One may study these with especial facility when a number of the birds are following a steamer, hanging poised on motionless wings in the up-draught behind the stern. The same thing may be noticed above a cliff-top, the birds taking advantage of the vertical currents set up. And in winter they may be seen soaring in circles at a considerable height above the gardens of any coastal town, riding on the varying gusts, so that they go this way and that, rise and fall, without more than an occasional flap or two to quit some disadvantageous current or to regain the course from which some crueller blast has buffeted them. Then sharp eyes detect scraps of food thrown out, and a Gull comes down. Probably they watch, vulture-like, for each other's descent, for soon a flock collects. Pulling, and flapping, and screaming, they

* '*Silbermöwe.*' But the Germans use '*Herringsmöwe*' for the Lesser Black-backed Gull.

do not allow each other time to eat, but one and all stuff their 'crops' to the fullest extent, as rapidly as they can.

Fish is eaten by preference; but it is perhaps a less important item in their bill of fare than one might imagine, for they appear to an onlooker to be not over successful in their fishing. Their usual method is to beat slowly along a few hundred yards of shallow water, dropping now and then on a fish near the surface; then to circle round to the beginning of the course and repeat the evolution, continuing in this way till one of their pounces is successful. A Gull with food, however, has no peace from his ever-hungry companions till the food is swallowed, and even then, if the robber Skua is his pursuer, he may have to disgorge it from his crop. In summer the Herring Gull has much to answer for in the way of egg-stealing. Carrion also forms a large part of its food, and indeed little comes amiss to it. At times these gulls go inland and feed in the fields, probing the turnips for grubs. In this latter occupation they do more harm than good, however, by making holes by which rain enters and rots more than the grub would have harmed.

The Herring Gull is found round all our coasts at all seasons of the year, and breeds on almost all the cliff-bound portions. Broken-down cliffs suit it best, for it is no lover of narrow ledges. A good, broad ledge, the flat top of a 'stack,' or a portion of cliff that is little more than a steep grass-slope, are typical sites. Sometimes, indeed, a small colony—for the species is always very gregarious—may be found in a marsh or on an islet in some loch; but such positions are more typical of some other species of Gulls, which we shall deal with later. The fact that in some parts of America, where Herring Gulls have suffered much perse-

Plate 11.

COMMON GULL—*Lar'us can'us.*

Length, 17 in. to 18·5 in.; wing, 14 in. to 15 in.

[GAV'LÆ: Lar'idæ; Lari'næ.]

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cution, they have taken to building in trees, is frequently cited. The nest itself may be a mere hollow in the turf, but it is usually a fair-sized heap of herbage, with a depression in the top to contain the eggs. These are usually three, but often only two in number. In colour they vary very considerably, but olive-brown and green eggs, with dark-brown blotches, are typical. Eggs may be laid before April is out, but incubation does not become general till mid-May.

The young are down-clad, but at first inactive, a characteristic of cliff nestlings; obviously the mortality would be too great if they took to running about the ledges at too early an age. The down is buffish brown in colour, with dark-brown spots. The first real plumage is quite different from the adults', all the feathers being closely mottled with brown, while the bill and the legs are dark. This plumage is retained till the autumn of the following year. Then, and every subsequent autumn, a new plumage is substituted for the old, becoming each time more like the white and silver livery of the adult. In captivity, at any rate, it takes five years for all brown feathers to disappear, and even after that the proportion of black in the quills is said to decrease with age. In winter the head of the adult bird is speckled finely with light brown.

Man is undoubtedly the Herring Gull's worst enemy. In early summer the eggs are regularly taken for food on most parts of the coast, and at all times the birds themselves are common victims of shore-shooting. On the Continent, in both France and Germany, as we have witnessed, it is considered 'sport' to go out in a boat and shoot down the unwary Gulls, leaving them on the water to perish painfully of their wounds. In this country, fortunately, worthier ideas for the most part

prevail; but in the neighbourhood of every large coastal town shore-shooting is rampant. Here again the wounded birds are usually left to their tardy fate. A broken wing is the commonest injury, and the humane person who rescues these birds will find them interesting, if not very intelligent, garden pets. Their brains are not of a high order, and true tameness they never seem to acquire. Proper treatment will, however, soon produce the familiarity that breeds contempt. But in this they show much individuality. We have known one in captivity for over eight years remain absurdly wild and suspicious, while others in the same garden have in a few weeks become bold and fearless, if hardly friendly. What possible conclusion is there but that the particular individual was mentally different from the rest?

THE COMMON GULL

(Larus canus).

Plate 11.

Although to this misnamed bird belongs the right to be considered as the typical Gull, it will be better for our present purposes, as we have said, to give it a less important place. On our coasts the preceding species is undoubtedly the commonest Gull, while inland, especially in Ireland, the Black-headed Gull holds the first place. Although the so-called Common Gull is a familiar enough bird on our coasts in winter, and is often found inland, as a breeding bird it appears to be entirely absent from England and Wales, and is only found very locally in Ireland. In Scotland it is relatively abundant, but still decidedly local.

Plate 12.

LESSER BLACK-BACKED GULL—*Lar'us fus'cus.*

Length, 22 in. ; wing, 16 in. to 16·5 in.

[GAV'IÆ : Lar'idæ ; Lari'næ.]

In point of size the Common Gull comes midway between the Herring Gull and the Black-headed Gull, and as regards plumage resembles the former, but the colouring of the legs and beak is different.

The Common Gull does not nest on cliffs, but frequently resorts to the less precipitous parts of the Scottish coast, and haunts similar to those of the Common Tern are sometimes chosen. Inland it nests on the shores and islets of Highland lochs and in marshes, after the manner of its black-headed cousin, but sometimes on open hillsides. Under favourable conditions it forms colonies. At no time is it a typical sea-bird, and it generally comes to shore on the approach of rough weather. This is doubtless the origin of its German name 'Storm Gull.' It seems a pity that some such appellation should not be substituted for its misleading English name. It is not as if this name had any wide popular hold; on the contrary, if used at all, except by ornithologists, it is generally misapplied.

The nest is a clumsy heap of herbage, heather, seaweed, or similar materials, according to locality. The nesting and other habits are similar to those of the Herring Gull, except in the particulars mentioned, and the eggs are also like those of that species, but scarcely exceed those of the Black-headed Gull in size.

THE LESSER BLACK-BACKED GULL

(Larus fuscus).

Plate 12.

The Lesser Black-backed Gull is just a little smaller than the Herring Gull, and differs from it chiefly in the bluish-black mantle and the yellow legs. In the various

stages of the immature plumage it resembles the Herring Gull, but has always a darker mantle. The chicks in down appear to be indistinguishable.

This species usually nests in large and sometimes enormous colonies, but it is more local in its distribution round the British coasts than is the Herring Gull, as its choice of nesting-sites is somewhat different. Ledges on cliffs are not favoured, but steep grassy slopes and the grass-covered tops of islets. Naturally, therefore, it is absent from much of the south and east of England; but it nests in Cornwall, Devon, Wales, and the Isle of Man, and is abundant in Cumberland and on the Farne Islands. Around the coasts of Scotland and Ireland, its haunts are much more frequent. In the former country it is especially numerous in Orkney and Shetland, and on the parts of the west coast sheltered by the Hebrides. In Ireland there are inland as well as coastal colonies.

Except for the difference already remarked, the nesting habits are similar to those of the Herring Gull, and the eggs are not easy to distinguish, although perceptibly smaller on an average. They are also more variable in colour, a greenish type predominating. Clutches of four seem more frequent than is the case with other gulls.

Although the bird subsists chiefly on fish and small crustaceans, little comes amiss to it, and in the nesting season it becomes a bold robber of the eggs and young of other birds.

THE GREAT BLACK-BACKED GULL

(Larus marinus).

This fine species is practically a larger edition of the Lesser Black-backed Gull. The legs, however, are flesh-coloured, and the mantle is of an even deeper black. It is

the largest of the whole Gull family and often measures thirty inches from the tip of the beak to the end of the tail.

At most of the English localities mentioned for the preceding species, the Great Black-backed Gull nests in small numbers; but it is absent as a breeding species from the Farnes and the whole east coast. On the east coast of Scotland a few pairs may be found here and there, but even in Orkney and Shetland the bird is not very common. In the Outer Hebrides, however, and on the north-west coasts of Ireland it nests quite abundantly, although never in such huge numbers as its smaller relative, from twenty to thirty pairs being considered rather a large colony. In spite of this it is decidedly commoner than the Lesser Black-backed Gull on parts of our coasts in winter, although generally seen singly or in pairs.

There is considerable variety in the nesting-places—hill-tops, cliffs, and islets in mountain lochs. The three eggs are usually light brown, handsomely marked with gray and umber, and can generally be identified by their size alone.

A bird of noble appearance and majestic flight, it is nevertheless a carrion-eater and a slaughterer of the weakly and the wounded—from sheep to young birds.

Just as there is a larger and a smaller black-backed and dark-winged Gull in north temperate latitudes, so there are two light-mantled, white-winged species of about the same sizes in the Arctic region. These—the Glaucous, or Burgomaster, and Iceland Gulls—are uncommon, cold-weather visitors to the British Islands.

THE BLACK-HEADED GULL

(Larus ridibundus).

Plate 13.

There are some who object to the name Black-headed Gull on the score of inaccuracy, and would substitute for it 'Brown-headed Gull.' But to demand absolute accuracy in a bird's popular name seems to us absurd, and we uphold the opinion that, as the Gull's 'hood,' although really of dark chocolate hue, appears black at distances at which the bird may usually be observed when alive and free, the term 'black-headed' is perfectly justifiable in a popular name. The name 'Laughing Gull,' sometimes popularly applied to this species, is also objected to as being rather far-fetched. In this connection Mr Hudson has made the interesting statement that the cry, although not very like a European laugh, is not unlike a negro's.

Still another popular name, 'Peewit Gull,' raises an interesting point. In winter Black-headed Gulls have the habit of watching Lapwings feeding in the fields, chasing them about, and bullying them into surrendering the worms and other things they have just found. The habit is probably the reason for the name; but other birds than Lapwings are sometimes victimised in this way.

Among common British Gulls the Black-headed Gull is readily distinguished by its dark hood; but other points to be noted are the small size and the bright-red colour of legs and beak. The hood disappears in winter, but traces of it may always be seen. The dark feathers are of course lost at the annual complete moult in autumn; but the mode of reassumption of the hood in spring was for some time a matter of dispute. It has been recently

Plate 13.

BLACK-HEADED GULL—*Lar'us ridibun'dus.*

Length, 16 in.; wing, 12 in.

[GAV'IÆ: Lar'idæ; Lari'næ.]

shown, however, that this is accomplished by a partial moult at that season.

The Black-headed Gull could not well be termed a 'Sea-Gull,' for it is not to any extent a marine species. It may, it is true, be found about our coasts at all seasons, but chiefly where there are sandy shores and sheltered estuaries. In summer many of its haunts are far from the sea, islands on inland waters being favourite nesting resorts. Still more typical haunts are the marshy edges of meres or lochs. There the muddy pools and the stretches of quaking turf form some protection against many of its enemies, including man, its worst. In the southern and south-western counties of England, breeding colonies of Black-headed Gulls are few and far between; but some of them are of great size, although not so great as a few decades ago. Scoulton Mere in Norfolk is perhaps the most famous nesting-place. Fifty years ago 16,000 eggs were taken for eating purposes from that colony alone in a single season! In Wales, in the Lake District, and in the north of England generally, colonies become more numerous. In Scotland, colonies are very frequent, even up to the Hebrides and the Shetland Isles. In Ireland the species is everywhere abundant.

In winter the Black-headed Gull is found on the Thames at London, and at other places where it is not found to any extent in the breeding season. But the numbers throughout the country in winter can only represent a fraction of those that nest with us. The migrations of birds like this—'partial migrants,' we call them—are rather difficult to study, as it is impossible to note their arrivals and departures owing to the presence of some members of the species throughout the year. An interesting method of study which avoids this difficulty is that of recording the wanderings of marked individual

birds. The migrations of the species under discussion were first studied in this way in Germany. The little fishing village of Rossitten, at the south-eastern corner of the Baltic Sea, is the seat of the German Ornithological Society's *Vogelwarte*, or ornithological station, while near the village there happens to be a colony of Black-headed Gulls. For several years the young birds of this colony have been marked with light aluminium foot-rings inscribed with the address 'Vogelwarte, Rossitten,' in addition to a number, different in each case. Some fifty of these have been heard of again, and the results so far are of great interest. Some of the birds had followed the north coast of Germany and the north and west coasts of France, some touching the south of England; others had gone so far, and then cut across Europe, perhaps following the Rhine and Rhone, and had reached the Balearic Islands; still others had crossed at once to the Adriatic and had reached the south of Italy, and even Tunis. In the same way Black-headed Gulls in this country are now being marked with rings inscribed with various addresses, and in a few years we shall probably know much more than we do now of the life-history of the members of this interesting and familiar species nesting in the British Isles.

By the middle of February or early in March most of the Gulls have returned from their wanderings and have assembled at their nesting haunts. The nests are large bundles of herbage, quite sufficient to keep the eggs high and dry above the water or mud. Late in April or early in May the eggs are laid. They are frequently two, but more often three in number. Genuine clutches of four eggs are probably not very rare; but four or more eggs in the same nest are probably to be regarded as the joint product of two hens. In colour the eggs are very variable.

Various shades of buffish brown and brownish olive are typical, while the spots, which often run together into large blotches, are much darker. All sorts of abnormalities—too many to enumerate here—are not infrequently found. The eggs in a single clutch, whether of normal or abnormal type, generally resemble each other in considerable degree; but 'odd sets' are not uncommon. In defence of its eggs or young this Gull will swoop at the head of the human intruder, often striking him with its wings.

Incubation lasts rather less than three weeks. The young birds are covered with buffish down, with darker spots above and paler down below. If undisturbed they do not leave the nest for some days. Altogether they do not make very hardy chicks, it seems, for the mortality-rate among them is high. Although they swim with ease, and apparently with pleasure, at an early age, they are extremely liable to attacks of cramp afterwards, which only too often prove fatal. Much harm may therefore be done indirectly by the most innocent invasion of a gullery, through frightening the chicks into the water at too early an age. The immature plumage is assumed after a few weeks, and the young Gulls scatter over the country. In this plumage they have the head something like the adults in winter, the mantle at first mostly dark brown, but afterwards a mixture of light brown and gray, while the bill and legs are dull yellow and yellowish red respectively. The tail has a conspicuous dark terminal bar.

The question of the food of the Black-headed Gull is an important one, owing to the keen dispute as to whether the species is to be considered harmful or beneficial to man. This dispute has brought out the necessity for the study of economic ornithology in this country, and has shown the futility of acting on the

opinions of parties directly interested. The fisherman complains of its fishing and fry-eating, where a more impartial observer is struck by the small proportion of these gulls which really engage in fishing! In the farmer's estimation, the fact that it sometimes eats newly sown grain outweighs all other considerations. A couple of years ago a report was drawn up on this subject for the information of the Cumberland County Council. In it the results of a hundred 'post-mortems' on Black-headed Gulls were given. It was found that both fish and grain form a very inconsiderable proportion of their food. Earth-worms, however, are a staple article of diet. But the proportion of wire-worms, crane-fly larvæ, and other pests is large enough to do more than balance all the harm the bird is responsible for. In spite of this obviously favourable verdict, a recommendation was made that legal protection be removed for a time, lest an abnormal increase take place and the species be driven to more harmful ways of supporting existence! This inconsistent recommendation has met with the severe criticism it deserved, but has nevertheless been acted on in Cumberland and elsewhere. A more authoritative report on the food of birds has since been published for the Board of Agriculture, and in this paper the opinion that the Black-headed Gull is on the whole decidedly favourable to man is emphatically stated. It is to be hoped that this may have the effect of having the species reinstated as a protected bird, for meanwhile, we know, an amount of egg-looting is going on at the gulleries which cannot but have, in a few years, a disastrous effect.

Plate 14.

KITTIWAKE—*Ris'sa tridac'tyla.*

Length, 15·5 in.; wing, 12 in.

[GAV'IÆ: Lar'idæ; Lari'næ.]

THE KITTIWAKE

(Rissa tridactyla).

Plate 14.

All the Gulls we have so far treated of belong to the typical group; but the Kittiwakes form a small group by themselves. Our species is characterised by the possession of only three toes, the hind-toe being generally absent, though occasionally appearing as the merest rudiment. Other characteristics are the small size, the greenish-yellow beak, the black legs, and the black-tipped primary quills. In winter the back of the neck is grayish. Fish and other marine animals form the Kittiwake's food, and it can dive well and swim under water. The name 'Kittiwake' is supposed to represent the bird's cry.

Although by no means confined to high latitudes, the Kittiwake is circumpolar in its distribution; examples from the Pacific—where there is also a red-legged species—more frequently show a rudimentary hind-toe than specimens obtained elsewhere. Although in autumn and winter it is found inland and migrates southwards from its summer haunts, in the nesting season it is strictly marine, and in Europe is not found farther south than Brittany. In the British Isles it nests in great numbers on many parts of the coasts and adjacent islands, but more particularly on the west coasts of Ireland and Scotland, and on the east coast of Britain, from Flamborough Head to Shetland.

Precipitous cliffs are always chosen as nesting-places, the narrowest ledges sufficing to support the nests. These are simple affairs, constructed of seaweed, turf, bent-grass, and the like.

The eggs, laid late in May, are two or three in number, and very variable in colour. On the whole, they are lighter in colour and less glossy than the eggs of most Gulls, delicate grays and browns and creamy tints being common.

The chicks are grayish buff, and the immature birds, or 'Tarrocks,' may be distinguished by the dark half-collar on the hind-neck, the dark patches on the wings, the dark bar on the tail, and by the black beak and brownish legs.

In former times Kittiwakes were only protected till the 1st of August, when the birds were still about their nesting-places, and frequently had young ones not yet able to leave the cliffs. Thousands were then shot down to supply the plume-market, with much cruelty to the parent birds, and to the chicks thus left to starve.

SUBFAMILY, STERNINÆ (TERNS).

THE COMMON TERN

(*Sterna fluviatilis*).

Plate 15.

At intervals round the coasts of the British Isles we come across considerable stretches of low-lying country which have been overwhelmed by sand. Some of them, perhaps, have always been waste within the memory of man; but not a few were a century or two ago tracts of fair and fertile land with prosperous villages. In some cases the encroachment of the 'wandering' dunes was gradual, but in those days irresistible, for even in these times it takes all the craft of man to protect many another fertile tract and threatened village. At other times the attack

Plate 15.

COMMON TERN—*Sterna fluviatilis.*

Length, 14·25 in.; wing, 10·5 in.

[GAVIÆ: Laridæ; Sterninæ.]

has been swift and sudden, a disaster of some great wind-storm. Thus it comes that these waste-lands, among which we might name the famous Culbin Sands in Moray, blot out whole parishes, leaving a mere tradition of former prosperity, verified occasionally by some movement of the shifting dunes revealing for a time a church steeple or a house-top. These sandy wastes support little vegetation other than bent-grass, and of animal life there is for the greater part of the year practically none. For some weeks in summer, however, many of these desolate wastes become crowded nurseries of bird-life. The sandy hollows teem with birds hatching their eggs and rearing their young. And among these the most numerous and the most noticeable are the Terns of various species.

The Terns are closely related to the Gulls, which they resemble in many essential as well as in many obvious ways. The plumage of the typical Terns is very gull-like. All four common British Terns have the plumage mostly white, except for the gray mantle and the black cap. This latter is lost to a greater or less extent in winter, and is represented in the immature plumage by a few dark markings. Immature birds have also many brown feathers in wings, mantle, &c. Altogether, the Terns' greatest difference from the Gulls lies in their smaller size and much more slender and graceful form. In fact, the long wings and the deeply-forked tail have earned for these birds the popular title of 'Sea-Swallows,' an epithet whose suitability no one who has ever seen a flock of them on the wing would for an instant deny.

Of the four species referred to, the most abundant in our islands is the Common Tern. Like the others, it is a summer visitor, arriving late in April or early in May. As a breeding species it is widely distributed with us. Small colonies may be found on islands in rivers and

other inland waters, but more often near the coast. There, any low-lying island or tract of open waste land may be the site of a colony of from anything up to several thousand pairs. But it is especially the sandy wastes that we have described that are the typical haunts of the Common Tern during the nesting season. When we invade such a sanctuary of bird-life and reach the top of one of the dunes encircling one of the large hollows, a thick cloud of these graceful birds rises before us. They remain flying about above the nests they have just left, uttering loud discordant screams, harsh and grating to the ear. Now and then, in a curious manner, all become simultaneously silent, and a lull ensues, to be suddenly broken in a few seconds by the renewal of the clamour.

We descend to the hollow in search of nests, but are at first unsuccessful. Then all at once we come on one so suddenly that our next step would have destroyed it. A few steps more and we almost tread on a second, and we find ourselves in the midst of the colony, for, as our eyes get accustomed to distinguish the eggs from their surroundings, we begin to see them on every side. The eggs do indeed harmonise well with the sand. The colour is very variable, ranging from light buff or pale green to rich, warm brown. The markings may be blotches or mere speckles, and are generally of a very dark brown, but purplish under-markings are usually present also. Three eggs form the full clutch, but two are very common. The eggs in a clutch frequently show considerable resemblance to each other, but are often totally different. It is not very uncommon, for instance, to find one egg pure white or unspotted light blue, or some such abnormal colour, while the others are of a commoner type.

The nests are very primitive affairs. Often the eggs

are laid with nothing between them and the hot sand; but more usually there is some attempt at lining the scraped-out hollow, bent-grass or herbage of some sort being generally used. The nests are not always placed on sand, of course; but whether difference of situation has any effect on the type of nest is doubtful. It is sometimes said that the amount of lining depends on the dampness of the ground; but we have noted dozens of cases where a perfectly unlined 'scrape' and a comparatively bulky nest lay within a yard of each other, both on dry sand.

Incubation lasts about three weeks, and the young leave the nest at once and begin to wander about the colony, showing considerable aptness in concealing themselves in the tufts of bent-grass at the approach of danger. It is certain that even in these large colonies Gulls and Terns know their own nests infallibly; but whether they can distinguish their own offspring from among the hundreds of chicks is more doubtful. The down plumage is very similar to that of the Black-headed and other Gulls.

When the young have attained full size and the power of flight, they journey with their parents to the shore, if they are not already practically there. Here they remain for several weeks more—till late in September in some seasons—before migrating to 'coasts that keep the sun.' On the shore they still remain markedly gregarious, and old and young keep together in large flocks, spending most of their time standing or sitting on the sandbanks. Some of the old birds, however, are usually away fishing, and their method of doing this is interesting. Like Gulls, they quarter the water methodically, but with less regularity and at a greater height above the surface. The prey once marked, the descent is a head-

long plunge, the bird often striking the water with sufficient force to submerge it completely and send up a column of spray. Even on the shore in late September the catch is shared with the young birds, showing perhaps that skill in this sort of fishing is not easily acquired.

THE ARCTIC TERN

(Sterna macrura).

Plate 16.

Very like the Common Tern is the Arctic Tern. So great indeed is the similarity that our account of the latter must be chiefly a record of slight differences.

To begin with the bird itself. The Arctic Tern is slightly smaller in build, but its actual length is greater, owing to the longer outer tail-feathers. The bill is of a brighter red and without a dull tip. The under-parts are of a darker, grayer colour, but are entirely without that faint suggestion of pink found in the Common species.

Altogether, the adult birds in summer are distinguishable at a glance at close quarters, but only by a practised eye under the usual conditions of observation. When the birds are in the nestling, the immature, or even the adult winter plumage, the difference is even less. A curious point about the Arctic Tern in winter is that the red legs become nearly black!

As regards the distribution of the two Terns, it may be said that the greater part of the British Isles lies within the breeding range of both. Taking the coasts separately, we find that the whole south coast of England and the east coast up to the Farne Islands are the exclusive territory of the Common Tern. From the

Plate 16.

ARCTIC TERN—*Stern'a macru'ra.*

Length, 14·5 in.; wing, 10 in.

[GAV'IÆ: Lar'idæ; Sterni'næ.]

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Farnes to the Orkneys both are found, the Arctic Tern becoming the more abundant of the two north of the Moray Firth. Only the Arctic Tern is found in the Shetland Isles. Both species are found along the western sea-board of Great Britain, from the Scilly Isles to the Outer Hebrides; but the Common Tern predominates as far as Skye, and the Arctic Tern has only a very few haunts much south of this. Both birds are found nesting all round Ireland, the Arctic Tern everywhere predominating.

The actual sites of the colonies also differ. The Arctic Tern shows a distinct preference for low islands, and the more sheltered dune-lands are not typical haunts. In Great Britain, lake and river haunts, too, are left almost entirely to the Common Tern; but in Ireland there are many large colonies on inland waters. When colonies of both species are found side by side, the Arctic Terns are usually nearer the sea; the species keep more or less apart, but are said to shift ground to some extent in various localities.

In habits the two species are much alike, but the Arctic Tern is the bolder in the defence of its eggs and young. Any large bird straying too near the colony is mobbed to death or driven off with great fury, and even the human intruder is met by threatening swoops.

The Arctic Tern seems much more inclined to dispense with a lining for its 'scrape,' and two eggs appear to form the normal clutch. The difference between the eggs themselves is a question of some difficulty, but we may safely steer a middle course. We may reject the statement that there is no difference, and we may also reject as unsafe the various methods suggested for identifying individual eggs of 'unknown antecedents.' But generalising we find that there are differences. To begin with, the Arctic Tern's eggs run perceptibly smaller on an

average. They are also more variable in colour; but two types predominate—a light type, greener than is usual for the Common Tern's eggs; and a brown type, darker than the typical buffish-brown egg of the Common species. The Arctic Tern's eggs are also more boldly marked on an average, blotches being as typical as small spots are of the other's. But, as we have said, no single egg, however typical looking, can be ascribed with more than probability to its particular species. For certainty the adult bird must be identified.

One point of special interest about the Arctic Tern is that it has, as far as is known, the greatest latitudinal range of any vertebrate animal. In the northern summer it is found as high as 82° N. lat., and in its winter-quarters it was found in the Antarctic summer in 74° 1′ S. lat. by the Scottish Expedition of 1902-4.

THE ROSEATE TERN

(*Sterna dougalli*).

The Roseate Tern is very similar to the Common and Arctic species, but has a longer, chiefly black, bill, a paler mantle, and in the breeding season a rosy tint on the breast feathers. It formerly nested on the coast and islands on the west side of Britain, from the Scilly Isles to the Cumbraes in the Firth of Clyde, at a few places in Ireland, on the Farne Islands, and perhaps on the coast of Moray. Some years ago it had practically ceased to breed at any of these places owing to persecution, and perhaps to the increase of the stronger Common species; but efficient protection was afforded it in time to allow it to re-establish itself in some places, notably on the Farnes and on the Welsh coast. Its

Plate 17.

LITTLE TERN—*Stern'a minu'ta.*

Length, 9 in. to 9·5 in.; wing, 6·75 in.

[GAV'IÆ: Lar'idæ; Sterni'næ.]

nesting habits resemble those of the Common Tern; but the eggs, generally two in number, are as a rule more elongated and have fewer and smaller markings.

THE LITTLE TERN

(*Sterna minuta*).

Plate 17.

The Little or Lesser Tern is the European representative of a sub-group of the typical Terns, to which the name 'Ternlets' is sometimes appropriately applied. Although really a smaller bird than a Thrush, its slender shape and long bill and tail give it, if anything, the advantage in actual measurements, and on the wing it looks a considerably larger bird. Its size, however, is quite sufficient to distinguish it from the other Terns found in the British Isles. As regards plumage, the Little Tern is very much a smaller edition of the Common species, two of the most noticeable differences being the white forehead and the yellow basal portion of the beak. It has no distinctive winter dress.

Like its allies, it is only a summer visitor to the British coasts, round which, with the exception of the north of Scotland, it is of frequent and widespread occurrence from May till September. Flat, shingly coasts are the favoured nesting resorts, and where these exist on the south and east coasts of England this Tern may usually be found. North of the Humber it is less common, and although found in Sutherland, and perhaps in Orkney, the Aberdeenshire colonies are probably the most northern ones of any size. On the west coast of Britain it is common for about the same distance, and is then irregularly distributed up the Scottish coast as far as the Outer

Hebrides. All round Ireland it is also found in suitable places, but less frequently in the south and south-west. On the Continent the Little Tern is not confined to the coasts, but follows the large rivers far inland and nests on their banks and islands.

Under the efficient protection now afforded this species at many of its haunts, it is regaining much of the ground lost owing to persecution; but many colonies have been altogether wiped out. When left to themselves, the birds have few natural enemies, and there is said to be little mortality among the chicks; where their numbers have decreased it must be put down to human agency—wanton destruction and indiscriminate collecting.

The eggs are two or three in number, and are laid in a hollow in the sand or shingle, almost always quite unlined. In addition to their much smaller size, they are more oval in shape and lighter in colour than those of the Common Tern, and harmonise extraordinarily well with the ground on which they are usually laid. The colour varies from light, almost bluish, stone gray to faint buff, and the markings are deep brown and the under-markings purplish. In some districts, at any rate, the Terns of this species tend to be a trifle later in their nesting operations than the Common Terns of the same region. Nests sometimes come to grief by being placed within reach of the waves; but the birds lay again if they lose their first clutch, and occasionally, it is said, when they have successfully reared one brood. The chicks, which are active from the first, and are clad in down, varying from gray to buff in colour, with darker spots, 'are fed largely on very small plaice about the size of a penny, sand-eels, sprats, &c.' In their first plumage the young birds have the head merely streaked with dark brown, and have mottlings of the same colour on the mantle and

other parts of the plumage. Full plumage is attained at the second moult, and the birds breed when two years old.

It has always been a matter for remark that this species does not nest on the Farne Islands. There the Common, Arctic, and Sandwich Terns all nest in abundance, and even a few pairs of Roseate Terns are to be found; but Little Terns are altogether absent. An attempt to introduce them by placing their eggs in the nests of other Terns was successful so far in that the young Little Terns were reared, and in due course departed with the others. But none of them ever returned. This raises an interesting point. Can strictly migratory birds be introduced by this method? We are familiar with it only for more or less sedentary species, and know of no successful results with migrants. An attempt, for instance, to introduce the Nightingale into parts of Scotland was a complete failure. Although we have as yet very little knowledge of the migration routes and winter-quarters of our summer visitors, from what we do know it seems that these are sufficiently fixed and definite for us to be able to assume that there must be either hereditary knowledge or guidance in the case of young birds performing the journey for the first time. Guidance seems out of the question, and we are practically compelled to fall back on hereditary knowledge, although that is but an explanation itself requiring to be explained. It would be an interesting experiment to introduce and carefully mark a sufficiently large number of Little Terns or other migrants in the way described, and to discover the subsequent history of some of the birds. One can readily imagine cases arising which would go far to prove or disprove the hereditary knowledge theory, for it is often by disturbing the normal course of affairs that light is thrown on the ordinary

workings of nature. In the case in question, of course, any number of causes without any bearing on the theory of migration may have brought about the failure of the introduction; but the point remains.

THE SANDWICH TERN

(Sterna cantiaca).

Plate 18.

The Sandwich Tern is the largest of the Terns which nest in the British Isles, and approaches the smaller Gulls in size. It resembles the other Terns in plumage, but the legs and feet are black, and the bill is of the same colour, with some yellow at the tip. The white under-parts are suffused with faint salmon pink. Before summer is over the black cap begins to decrease, and in winter it is represented by a few dark markings. The head of the young bird is similarly marked, and the mantle is also mottled.

The Sandwich Tern is no longer particularly associated with the locality from which it derives its name, and many of the colonies, such as those on the Scilly Isles, have disappeared. But it is still common in parts of the British Isles, and now generally receives efficient protection at its haunts. On the east side of Britain it nests from the Farne Islands, one of its chief strongholds, northwards to Moray, and on the west from the Lancashire islands to the north shore of the Solway Firth, the chief colony being at Ravenglass in Cumberland. It also nests in the Orkneys, and has done so in the Channel Islands. In Ireland there are one or two big colonies in County Mayo. At most other places on our coasts it may be seen at the migration seasons. Like its allies, it is of course a summer visitor to the British Islands.

Plate 18.

SANDWICH TERN—*Sterni'a canti'aca.*

Length, 16 in.; wing, 12 in.

[GAV'IÆ: Lar'idæ; Sterni'næ.]

The nesting habits do not differ markedly from those of the other Terns of this group. The nests are usually mere 'scrapes,' but sometimes with a lining of bent-grass, while fairly bulky structures of this material are occasionally found. The eggs are usually two in number in the British Isles, but the commonest clutch in Mayo is said to be three. They are about as large as those of the Black-headed Gull, and are very variable in colour, creamy buff to buffish stone-colour, and usually boldly and handsomely marked. The down-clad chicks are grayish buff above, with dark mottlings, and gray and white colour below.

THE BLACK TERN

(Hydrochelidon nigra).

As we have seen, five Terns of the typical group nest in the British Isles; but now we come to the sixth indigenous Tern, a member of the Marsh Tern group. The Marsh Terns have proportionately shorter wings, very slightly forked tails, and only half-webbed toes. Some of them, including the present species, are characterised by the prevalent dark hue of their breeding plumage. A century ago Black Terns nested in hundreds in the Norfolk Broads, Lincoln Fens, and other suitable places; but various causes brought about their extermination, and the last recorded British nest was in 1858. Now a few birds may be seen each spring, but the species is chiefly known to us from the migration of young birds past our coasts in autumn. 'Blue Darr' and 'Car Swallow' are among the local names of the Black Tern.

ORDER, LIMICOLÆ (WADERS);

FAMILY, CHARADRIIDÆ (PLOVERS, &C.).

THE CURLEW

(Numenius arquata).

Plate 19.

The weird cry of the Curlew, audible at a great distance, is one of the most familiar and typical sounds of the open moorland. We may hear it as the wary bird catches sight of us a quarter of a mile away; but, if the bird be still oblivious of our presence in its favourite solitudes, it may give utterance to the curious bubbling note which is its spring-song. For song it is, as much as that of any Warbler; and although its merit as music be small, it is certainly most appropriate to the surroundings amid which it is usually heard. Something wild, something weird, something even mysterious is in it which is in absolute harmony with the bleak but beautiful land of purple heather and purple sky—the north-west Highlands, say, at sundown after a stormy day.

With the Curlew we begin our treatment of the commoner members of the Order of 'Waders'—solitary birds of marsh and moorland in summer, gregarious birds of sandy shore and tidal mud-flat from autumn till spring. At the latter time, however, their numbers, both as regards species and individuals, are greatly swelled by the addition of members of the vaster hordes whose summer homes are on the tundras of Arctic Europe.

Of this Order the Curlew is in many ways a fair type; but its dimensions are greatly above the average for

Plate 19.

CURLEW—*Numen'ius arqua'ta.*

Length, 21 in. to 26 in.; wing, 11·5 in. to 12·25 in.

[LIMIC'OLÆ: Charadri'idæ.]

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the Order, of which it is, in fact, the largest British representative. No description of the Curlew is necessary, for it must be known to all, so familiar is the sight of a score of them in long line, or in V-formation, flying over the cultivated land on their way from moor to shore, a daily journey at some seasons of the year. An occasional loud rallying cry draws our attention to the passage of the wild clan—long bills clearly outlined against the sky, long wings beating in rapid flight, long legs trailing in their wake. The long, down-turned bill is of course the head-mark of the species, and it may be noted that long bills, whether decurved, upturned, or straight, are common among Waders, and are used for probing in sand, mud, and soft ground. They are well adapted for this purpose apart from their shape, the tips being well furnished with nerves, and thus forming delicate organs of touch. Long legs usually go with long bills, and are characteristic of Waders, most of which, by the way, can run at an astonishing rate. Of the plumage it need only be said that it is protectively coloured, the sober browns harmonising well with any dark background of 'neutral' tint.

Throughout the year the Curlew is found round the coasts of the British Isles; but it nests only on heaths and moors, and is therefore absent from much of the east and south of England, and is always apt to be local where cultivation is general, for it is a true bird of the wild, and does not adapt its habits to suit the ever-spreading effects of modern civilisation. Its typical haunts are therefore in the great tracts of waste lands where natural wild conditions still prevail. In the north of Scotland, for instance, it is comparatively abundant. There it is known as 'the Whaup,' and is an object of popular superstition, as can well be understood.

On the moors, then, it lays its four eggs in April in a

mere depression in the ground. They are large and pear-shaped, and are protectively coloured — olive-green, with browner blotches. The slight nature of the nest, and the pyriform shape and protective coloration of the eggs, are characteristics common to almost all Waders. The constancy of the size of the clutch is also characteristic. Four is the normal number of eggs for most Waders—three for a few; but, whichever it is, it is nearly always attained and very rarely exceeded.

Both parents take part in the duties of incubation, and show great vigilance and wariness, seldom betraying the position of their nest. At times, however, a Curlew will sit remarkably close. We have known a photographer approach openly to within a few feet of one, and take several 'time exposures'! As a rule, it demands all the photographer's cunning in concealing his camera and arranging automatic electric contrivances to secure a portrait of this shy sitter. In due course the young Curlews hatch out and reveal themselves as typical Wader chicks, clad in down of 'protective' hue—pale grayish buff with brown mottlings above, white below—and active from the first, a trait which is indicated by the disproportionately large and well-developed legs and feet. One point strikes us at once—the bill is short and straight like a Plover's. This we take as an indication that the plover-like bill was the original type for this Order, from which the other more specialised forms have been gradually evolved, and that the stages of this evolution correspond in a general way to the stages through which the bill grows in the first few weeks of each individual Curlew's life. The bill gradually lengthens, and also becomes more decurved, until its bearer is a full-grown, 'long-nebbit' Whaup of the moors.

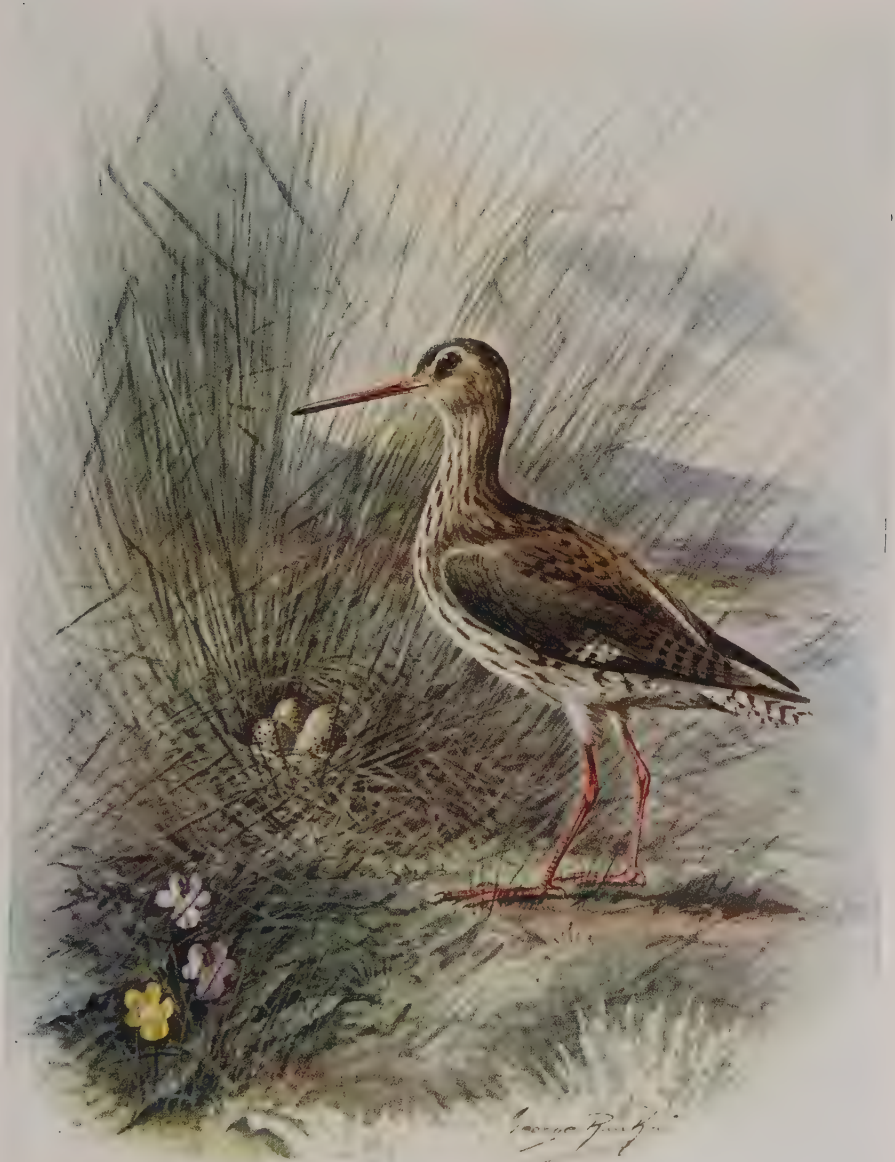

Plate 20.

REDSHANK—*To'tanus cal'idris.*

Length, 11 in. ; wing, 6·25 in.

[LIMIC'OLÆ : Charadri'idæ.]

THE WHIMBREL

(Numenius phæopus).

In appearance and habits this species may be described as a small Curlew; its eggs, also, differ mainly in being smaller. It is chiefly a spring and autumn migrational visitor to British coasts, but small numbers remain with us both in summer and winter in some parts. As a British-breeding species, it is confined to the Outer Hebrides, Orkney, and Shetland, and is found more abundantly in the last-named group. Among its local names are 'Half-Curlew,' 'May-Bird,' 'Titterel,' and 'Seven-Whistler,' the last two referring to its cry, which is rather different from that of its larger relative.

THE BLACK-TAILED GODWIT

(Limosa belgica).

The Black-tailed Godwit, a large, handsome Wader, with a long, slightly upturned bill, formerly bred in the eastern parts of England—in Norfolk down to 1847 or later—but is now no more than a migrational or winter visitor to British coasts. As such it is less common than its near relative the Bar-tailed Godwit, which there is no reason to regard as ever having been a British-breeding species.

THE REDSHANK

(Totanus calidris).

Plate 20.

With the Common Redshank, we come to those Waders which are broadly spoken of as Sandpipers. Among these the Redshank is rather a large bird, although itself

much smaller than those Waders we have so far dealt with. The bright-red legs which give it its name serve unfailingly to distinguish it from all but a few near allies, none of them common British birds. The cry, too, is easily recognisable, and is therefore an important means of identification in the case of such a noisy bird as the Redshank. In fact, the few loud, clear whistles which it utters on rising in alarm are usually the first indication that we have of its presence, for with the exception of its legs it harmonises perfectly with the mud-bank on which it is feeding, or with the moor whereon its nest is hidden. Being a wary bird, it is therefore usually on the wing before we see it. As it flies away with rapid, wavering flight, the loud, ringing cry echoes from river-bank to river-bank or from sand-dune to sand-dune, putting all living creatures on the alert. For this reason it is at such times the bane alike of the prowling naturalist and of the sportsman on slaughter bent.

Throughout the British Isles the Redshank may be found in suitable localities from March till early autumn. The localities it favours are swampy river-banks and lake-sides, moors and marshes—in fact, any waste land of a moist character where it can enjoy a fair measure of freedom from human interference. Such localities are, however, practically absent from great parts of the south and middle of England. During the rest of the year it is seldom found inland, but resorts to the sea-coast and tidal estuaries, where it is usually to be met with in parties or even large flocks throughout the autumn. At this season, too, our home-bred birds are joined by others from northern Europe. In winter a few still remain about the coasts, but the majority have undertaken a southward migration. In spring there is, of course, a return migration; but the birds waste no time on shores and

mud-banks, but repair at once to their nesting-haunts. This is characteristic of the migrations of all birds. In autumn the journey is prefaced by much flocking and assembling, and by days or weeks of lingering and delay, for while food is still abundant the impulses to departure are weak. In spring, however, the impulses are strong, and the birds arrive as soon as, or sometimes sooner than, is expedient, and at once disperse to prepare for the serious business of the year.

The Redshank chooses some haunt of the sort we have already described, and in a good place of fair extent there may be something approaching a colony of these birds. Each pair, however, keeps more or less to itself; for, gregarious as most Waders are at other times, they tend to be solitary when nesting. By this they certainly reap the full advantage of the protective coloration of their eggs. Early in the season the primitive but pleasing spring-song may be heard as the male stands on a paling-post or hovers about beside his mate. It may be described as a low, warbling whistle, and is sometimes syllabled 'Leero, leero, leero.' Early in April, or perhaps not for nearly a month later, the eggs are laid. They are almost invariably four in number, and are of a buffish stone-colour, with rich reddish-brown blotches. They may be placed in the merest apology for a nest on the open pasture or moorland, but are more often concealed in the heart of a clump of tall rushes. When disturbed, the parents fly about noisily, trying to attract intruders from the vicinity of the nest.

Just over three weeks is the period for which the eggs are incubated before the four chicks emerge. These are the usual active balls of fluffy down, with absurdly inadequate wings and grotesquely long legs. With these they can run at an astonishing pace, and on the approach of danger they can scatter quickly and then 'squat,' hiding themselves

amid their surroundings by reason of their coloration—a mixture of blackish and yellowish brown above, light below.

THE GREENSHANK

(Totanus canescens).

The Greenshank is a larger ally of the Redshank, but with green legs, as the name implies. It is otherwise very similar in appearance and behaviour, and has similar nesting habit and eggs. Even the cry is of the same Order. To England and Wales and the south of Scotland it is chiefly a migrational visitor; but in Ireland it is also a winter visitor; while in Scotland it breeds sparingly, near inland waters, from Argyll and Moray northwards to the western but not the northern isles.

THE WOOD SANDPIPER

(Totanus glareola).

The Wood Sandpiper, a bird somewhat closely resembling the next species as regards appearance, habits, eggs, &c., is a migrational visitor in small numbers, chiefly to the east coast of England; but there are a few more or less authentic records of its breeding within the British Isles.

THE COMMON SANDPIPER

(Totanus hypoleucus).

Plate 21.

Although the 'headquarters' of the Waders as a whole lie to the north of the British Isles, we have in the Common Sandpiper a species which is entirely a summer

Plate 21.

COMMON SANDPIPER—*To'tanus hypoleu'cus.*

Length, 8 in.; wing, 4·25 in.

[LIMIC'OLÆ: Charadri'idæ.]

visitor. For this reason it is popularly termed the 'Summer Snipe' in certain districts. Its stay with us, moreover, is a comparatively short one. It does not usually appear in any numbers till about the middle of April, and not till early May in very late seasons. For a short time the birds may be seen about the seashores and estuaries, but they rapidly disperse to their inland nesting-places. By the end of July they begin to seek the coast again with their young, and there small flocks may for some time be met with. As a rule, they keep apart from other small Waders. During September most of them leave us altogether, but a few may be recorded later.

The nesting-haunts of the Common Sandpiper are the banks or islands of rivers and lakes. It is naturally absent, except on passage, from most of the south-east of England, but becomes fairly common in the north, as well as in Wales and most of Ireland. Throughout Scotland it is abundant even up to the western and northern isles.

The nest itself is generally close to the water. It is composed of grass, moss, and leaves, and is usually a rather better structure than most Waders build. As a rule, it is placed on the ground, more or less concealed among grass or stones. At times, however, it is in very exposed situations, while at others it is some feet from the ground in a bush or tree. The eggs are generally laid during May. They are four in number, and are of a reddish-buff tint, minutely spotted with dark brown and purplish gray. The chick in down is white below, pale gray with black mottlings above.

At all times this is a very restless but not really very shy bird. Even when standing in one place it is rarely still, but keeps bobbing up and down and jerking its tail in a curious and characteristic manner. When in anxiety

for the safety of its nest, it uses every device to lure the intruder from the neighbourhood. When disturbed and suspicious, it keeps flying about from place to place in a restless manner, now running along the shingle, now perching for an instant on a rail or bough. When wounded, it sometimes displays its powers of swimming, and in this it shows considerable proficiency. Using both feet and wings, it can even swim for some little distance under water.

The often-repeated note is a low, plaintive whistle, but this Sandpiper has also a special spring-song of somewhat similar nature to the Redshank's.

THE RUFF

(Machetes pugnax).

This interesting species is a migrational visitor to the British Isles, chiefly to the east coast of Great Britain; it still breeds very sparingly in the marshes of the east of England, where formerly it was much commoner. Drainage and collecting have been its foes; but protection is now combating the latter. In the breeding season the male has the curious shield-like ornament from which it derives its name, the female being termed 'the Reeve.' The 'ruff' is composed of feathers very variable in colour, no two birds being exactly alike. Where common enough, the Ruff is polygamous, and early in the season the males 'hill'—that is, collect on little mounds, and fight furiously but very harmlessly! They appear to take no share in the nesting duties. The nesting-habits of the species are otherwise of the usual Wader character; the eggs are grayish green with reddish spots and blotches.

Plate 22.

SNIPE—*Gallina'go cœles'tis.*

Length, 10·75 in.; wing, 5 in.

[LIMIC'OLÆ: Charadri'idæ.]

THE DUNLIN

(Tringa alpina).

This small species, with the conspicuous black underparts in its summer plumage, is found in the British Isles all the year round, but most abundantly in autumn, when it is one of the commonest of shore-birds and is often found in huge flocks. Its near allies, the Knot, the Little Stint, the Curlew Sandpiper, and the Purple Sandpiper, are also more or less familiar autumn shore-birds; but they do not nest with us, although the last-named is suspected of having done so. The Dunlin itself nests sparingly in parts of England and Wales, but is almost entirely absent in summer from the south and south-east. In Ireland it also nests locally, and in Scotland it is rather widely distributed, although breeding abundantly in only a few places. It is essentially a moorland-nesting species. The eggs are grayish green, boldly blotched with two shades of reddish brown.

THE SNIPE

(Gallinago cœlestis).

Plate 22.

With the Snipe we come to a group of Waders which have, among other characteristics, remarkably long and straight beaks. We may also note that, with some unimportant exceptions, like the Curlew, it is the first bird we have to discuss which is esteemed for the table and is made a regular object of sport.

The Snipe nests in fair numbers on the moors and bogs of Scotland and Ireland, preferring marshy situations,

and is often found at considerable elevations. Throughout England and Wales it also nests, although in much smaller numbers, and is commonest in such particularly suitable districts as Lincolnshire and East Anglia. In October and November, however, extensive immigration from the Continent takes place, and the Snipe remains abundant, in the southern portions of the British Isles at least, till the following March.

It is usually early in April that the four eggs are deposited in a slight nest made among the heather or rushes or in a tuft of grass. They are large in proportion to the size of the bird, and vary from rich yellow to delicate green in ground-colour, boldly marked with various shades of reddish brown. The Snipe is a shy and wary bird, but it is wont to trust rather in concealment than in flight. When sitting closely on its nest a Snipe almost defies detection at a few yards distance, so well does its plumage harmonise with the surrounding herbage. Even better for this purpose is the striped down plumage of the active chicks.

The Snipe is to a considerable extent crepuscular in its habits, and becomes most active towards twilight. It is at that time that we most frequently hear the familiar 'drumming' or 'bleating' noise made during the breeding season by *both* sexes. The exact origin of this sound has long been a subject of discussion, some holding it to be caused by the tail, others by the wings, while a few considered that it might even be vocal. Recent observations have practically settled the matter in favour of the tail. The sound is made during rapid downward flight, when the tail is spread out fan-wise, so that the two outermost feathers stand clear of the rest. It is the vibration of these two that produces the 'bleat.' On examination it is found that these feathers differ from

the rest in the shape and special strength of the web, the short, curved shaft, and the muscles which control them. Experimentally it has been shown that the 'bleat' may be closely reproduced by taking these two feathers from a Snipe killed at the proper season, and attaching them to a cork, which is then whirled round on the end of a string.

It is of course in winter that Snipe are shot, and at this season they associate in small parties called 'wisps' or 'whisps,' and it is very noticeable with what remarkable unanimity all their movements in flight are made. The Snipe usually remains hidden till closely approached, and then suddenly flies up with an extremely rapid zigzag flight, repeating the while a short note of alarm. In India the Snipe is said to fly off with a straight flight when flushed, and therefore to be more easily shot. When in good condition, Snipe average four or four and a half ounces, but examples weighing five ounces, or even more, are sometimes obtained. As the Snipe's food consists largely of worms and other things which it probes for in the soft ground with its long beak, long-continued frost tells heavily on it, and the birds become very thin and weak.

A melanistic or dark variety of the Snipe was formerly separated as a distinct species, known as 'Sabine's Snipe.' About sixty specimens of it are known, and they are almost all from the British Isles, and notably from Ireland. It has been pointed out in this connection that melanism is particularly apt to occur in districts which have a very moist climate.

The Snipe and the Woodcock have the upper and lower halves of the bill sufficiently flexible to be opened at the tip while otherwise shut. Worms, &c., can thus be grasped underground.

THE WOODCOCK

(Scolopax rusticula).

Plate 23.

The Woodcock is a near ally of the Snipe, and has the same long, straight bill. It is, however, noticeable among Waders for its lack of the usual grace of form; the legs are rather short, and the whole body may be described as 'dumpy.' No bird, however, is more esteemed for the table or for the sport which it affords.

As its name implies, this species inhabits woods and plantations, but it prefers those of an open character. Owing to the increase of plantations of late years the number of British-breeding Woodcocks has become much greater, but is still insignificant in comparison with the great 'flights' that arrive from overseas during the October nights, and remain with us till early March. Some of the spring migrants are still passing through the country when our own Woodcocks are nesting.

As a breeding bird it is distributed over the greater part of the British Isles. The nest is a mere depression in the ground with a slight lining of dead leaves, and is frequently close to the base of a tree. Laying begins early, often by the middle of March, and to find eggs when there is snow on the ground is a common occurrence. The four glossy eggs are less pyriform than is typical of Waders, and are yellowish in ground-colour, with gray under-markings and bold blotches in two shades of reddish brown. Against a background of dead leaves the sitting bird and the exposed eggs are alike nearly invisible. We have, however, seen a clutch of pure white eggs—rather a rare occurrence—and the conspicuousness

Plate 23.

WOODCOCK—*Scol'opax rustic'ula.*

Length, 14·25 in. ; wing, 7·5 in.

[LIMIC'OLÆ · Charadri'idæ.]

of these emphasised by vivid contrast the value of the normal coloration. The active little chicks are clad in rich rufous down, paler on the under-parts, and longitudinally banded with chestnut above, with various minor markings.

That a Woodcock will sometimes fly carrying one of its chicks has for long been known to naturalists. In some old works it is stated that the chick is carried in the bill, a practically impossible feat for this species, as Gilbert White sanely pointed out. Others describe the chick as being carried in the claws; but the ordinary, if not the only way, is to carry the young one between the thighs and pressed close to the body, additional security being at times obtained by use of the bill. This habit is most often noted when a Woodcock is alarmed when with its chicks; one is immediately carried some distance away, the old bird returning for another if the danger is not already too close. St John, however, avers that Woodcocks regularly transport their young, one by one, at twilight to the low marshy feeding-grounds some little distance from their native wood, and this even when the young are 'greater in size than Snipe.' Further corroboration of this is considered desirable. Snipe and other species have occasionally been detected carrying young ones in flight.

After the duties of the nesting season are over the birds efface themselves, becoming very skulking in their habits, in order to accomplish the autumn moult in safety. This has led to the popular belief that they all migrate, and that the birds found in winter are all of foreign origin. Since 1891, however, Woodcocks have been 'ringed,' in the manner already described, on the Duke of Northumberland's estate at Alnwick. Some of the birds marked there in summer were recovered there in winter, but

others proved to be migratory. So far these records show no very definite direction of migration, many birds going to Ireland, some to the south of England and the north of France, and others going north well into Scotland! Similar results have been got more recently in Tyrone. Some Woodcocks migrated in north-easterly and south-easterly directions—actually opposite to some of the Northumberland birds — while many proved to be resident. More records of this sort are needed fully to elucidate the matter.

The Woodcock is nocturnal in its habits to a great extent, and in the breeding season there is a remarkable crepuscular love-flight. From the numerous published descriptions, differing somewhat in various details, we select that of the late Professor Alfred Newton in his famous *Dictionary of Birds:* 'During this season the male Woodcock performs at twilight flights of a remarkable kind, repeating evening after evening (and it is believed at dawn also) precisely the same course, generally describing a triangle, the sides of which may be a quarter of a mile long or more. On these occasions the bird's appearance on the wing is quite unlike that which it presents when hurriedly flying after being flushed, and though its speed is great the beats of the wings are steady and slow. At intervals an extraordinary sound is produced, whether from the throat of the bird, as is commonly averred, or from the plumage is uncertain. To the present writer the sound seems to defy description, though some hearers have tried to syllable it. This characteristic flight is in some parts of England called "roading," * and the track taken by the bird a "cock-road." In England in former times advantage was taken of this habit to catch the simple per-

* Also 'roding' in East Anglia and elsewhere, and variously connected with the English *road*, the French *rôder* (to rove or wander), and the Scandinavian *rode* ('an open space in a wood').

formerly in nets called "cock-shutts," which were hung between trees across the open glades or rides of a wood, and in many parts of the Continent it still is, or was till very lately, the disgraceful habit of persons calling themselves sportsmen to lie in wait and shoot the bird as he indulges in his measured love-flight.'

About twelve ounces is perhaps the average weight of Woodcock, and over fifteen ounces is rare. Some writers state that the hen is the larger bird; others that the cock varies more in weight, but that it is heavier on an average. In plumage there is much individual variation, apparently irrespective of sex; but immature birds tend to be darker than adults. Partial albinos are not infrequently found, and pure white examples are known to occur. Attention has recently been called to the curious position of the Woodcock's ear-opening—below and in front of the eye.

THE RED-NECKED PHALAROPE

(Phalaropus hyperboreus).

This is a charming and interesting little Wader of aquatic habits, and provided with lobed toes. It is practically a lobe-footed Sandpiper. With two allied species it shares remarkable breeding habits. The females are the larger and more brightly coloured birds; they do the courting, and even fight among themselves for their chosen mates. The males undertake the larger share of the domestic duties. The nest is of the usual Wader type, and the four eggs are of a greenish colour, with very dark markings. In the British Isles this bird was formerly believed to nest only in Orkney, Shetland, and the Outer Hebrides; but in 1902 a colony was discovered on the Irish coast. On migration it occurs in small numbers on other parts of our coasts.

THE AVOCET

(Recurvirostra avocetta).

The Avocet is a long-legged Wader with black-and-white plumage, and a markedly upturned, long, slender bill. Down to about 1824 it bred as a summer visitor in the marshes of the south-east of England, to which it is now but an uncommon migrant, as to other parts of the British Isles. It is perhaps not impossible that under the efficient protection now afforded in Norfolk this species may in time re-establish itself, as the Ruff has begun to do. Such conspicuously beautiful birds, however, are naturally the mark of every shore-shooter who sees them; and we cannot protect them on their migrations.

THE OYSTER-CATCHER

(Hæmatopus ostralegus).

Plate 24.

Rivalling and perhaps outdoing the Redshank in point of noisiness is the rather large Wader, the Oyster-Catcher, a well-known bird of the seashore and the shingly river-bank. In summer the latter haunt is especially characteristic, and no bird obtrudes itself more often on the notice of the angler, standing thigh-deep in the waters of, say, a Scottish salmon-river flowing past the great banks of rounded stones so often accumulated on the convex curves of the banks. Streams that flow strong and deep between abrupt banks, or streams meandering through lowlands cultivated to the water's edge, have no attraction for the Oyster-Catcher; but where the stretches of shingle are ample enough for the bird's eggs and nestlings to lie on with little

Plate 24.

OYSTER-CATCHER—*Hæmat'opus ostral'egus.*

Length, 16·5 in.; wing, 9·75 in.

[LIMIC'OLÆ: Charadri'idæ.]

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fear of detection, there it will make the banks resound to its loud and merry calling all day long, and often through half the night.

In the nesting season the Oyster-Catcher is practically confined to the neighbourhood of such haunts, whether river-side or coastal; but at other times it is more widely distributed along both stream and shore. After nesting duties have begun each pair keeps pretty much to itself and to its own chosen ground; during non-nesting seasons it is more markedly gregarious.

It is generally in May that the eggs are laid on the shingle-bed, or on some less usual ground—a ploughed field even may be selected. Three is the normal clutch; the eggs are tinted buff, and spotted and scrolled with black. Against their customary background they are extremely difficult to detect. The same is true of the downy chicks, which are pale below, buffish stone-colour above, with dark markings arranged longitudinally.

The species gets its ordinary name 'Oyster-Catcher,' and its local one 'Mussel-Picker,' from the fact that it feeds largely on molluscs. When dealing with these it shows great skill in the use of its strong beak. When searching for edible mussels, for instance, it passes by those left high and dry by the tide, for they keep their 'valves' tightly closed together. Those lying partly open under a layer of wet mud or sand are detected in some mysterious manner. The beak is thrust in between the two 'valves,' and is used as a lever or to break the strong-closing muscles by sideways movements. Sometimes more forcible methods of effecting an entrance are resorted to. In fact, the method of attack varies with the position as well as with the nature of the victim.

[The Turnstone has been suspected, but not proved, to have nested exceptionally within our area, to the coasts of which it is a migrational visitor.]

THE GOLDEN PLOVER

(Charadrius pluvialis).

Plate 25.

The typical Plovers constitute a well-marked section of the Wader Order, and among other characteristics are marked by their short and rather stout beaks and by their less distinctively littoral habits. The bleak extensive tundras of sub-Arctic Europe and Asia form the home of most of the Plovers, individuals and species, that concern us in this country. Some few of these, principally members of the present species, remain to nest on the elevated moorlands of the British Isles. It is true that in autumn these home-breeding birds seek the coastal districts, and may then be found feeding on the tidal mud-flats and sandbanks, but it is probably more a matter of general climatic conditions than love of littoral feeding-grounds. In autumn, also, our coasts form part of the migration routes of many of the Plovers nesting in more northern lands, including representatives of the handsome Gray Plover, or perhaps of still rarer species which, like it, never nest within our area. Many of these migrants find congenial winter-quarters with us; but greater numbers pass on, some of them to lands far south of the equator, to repass our shores more hurriedly on the return journey late in spring. Before their passage is nearly over, however, our own moors have their full quota of Plovers already engaged in the serious business of incubation. And on this depends a problem. Do the birds breeding farthest north migrate farthest south, and do birds breeding midway, as the Plovers in the British Isles, remain more or less stationary? Or do the midway birds

Plate 25.

GOLDEN PLOVER—*Charad'rius pluvia'lis.*

Length, 11 in.; wing, 7·5 in.

[LIMIC'OLÆ: Charadri'idæ.]

migrate with the rest—being replaced by birds from the extreme north of the range—but return earlier than those which must nest in countries remaining longer in the grip of winter? If that were so, would not the flocks about our coasts, which we have for the moment assumed to breed farther north than any wintering to the south of us, be the very last to go? After all, the first suggestion seems the more likely, but proof is entirely lacking. Nor is it easy to imagine any possible method of proof except, perhaps, bird-marking on an immense scale. The question is no mere matter of interesting speculation, but one which, unanswered, obstructs the threshold of the great problem of the origin of the migrational habit, which in turn leads us to deep problems of psychology, heredity, and other aspects of biology as far-reaching and important as they are intricate and difficult.

The Golden Plover, or simply the 'Plover,' for it is the typical species, is a truly handsome bird in its summer dress, with the deep-black under-parts, the pure white on head and flanks, and the mottled greenish yellow of the upper plumage. On a museum shelf it stands conspicuous among the sober hues of the Sandpipers and Snipe that may be placed beside it. But on the open moor it is found to be as protectively coloured as any.

A rough Highland road winds across a vista of rolling moorland, not purple yet, but brown and green, relieved occasionally by clumps of the hardier flowers of early summer. As we follow it our attention is held in turn by the dark-blue, massive hills, cloud-capped and patched with lingering snow, and by the cold, gray, wind-whipped loch in the hollow, with its island ruin, its issuing torrent of foamy, peat-brown water, and its drinking herd of shaggy, long-horned cattle or wild red-deer. A cry overhead suddenly recalls us to our nearer

surroundings. The cry is faintly reminiscent of the Peewit, long left behind on the lower levels, but is whistled, not wailed, and is light, almost cheerful, instead of monotonous and exaggeratedly plaintive. Decidedly a pleasant cry, we think, and look up to see a pair of Plovers fly quickly across our path, and, undeterred by our close approach, settle in a hollow in the moor not twenty yards away. In a few seconds we mount the rise which hid their exact landing-place from our view, and we see before us a hollow with clumps of heather and rank grasses, patches of fresh green turf, black spots of bare peat, dark, mottled green growths of moss, and random flecks of white—the heads of the cotton-grass growing in the damp of the hollow. Against such a favourable background our Plovers seem able to melt away, but movement betrays them. The white, small though its area, is probably the first to catch the eye, as what we passed over for a wisp of cotton-grass suddenly moves across the ground and reveals the bird. It is conspicuous enough now, and we have difficulty in believing that a moment before we could stare straight at it without seeing it. The resemblance to the background is not extraordinary, and it is, rather unexpectedly perhaps, in the variedness of the plumage that we must look for the secret. We did indeed *see* the bird from the first, but we did not *see it as a whole*. An irregular patch of mottled green, a wisp or two of white, a shapeless patch of black. None of these three alone suggests a bird in any way, and each is repeated a hundredfold in the surroundings. We have nothing definite to look for, but must vaguely seek to discover which of these patches must be grouped together to make up the shape of a bird. When the required patches suddenly move altogether we co-ordinate them instantly. If they remain still, co-

ordination will probably come sooner or later in a chance sudden flash. In either case, once the co-ordination is made the bird is plain enough, and if it remains stationary we can find it again without difficulty if we look away for an instant. If there is anything in the plumage not in the surroundings we have something definite to look for, or even to catch the eye when not specially intent. For instance, if there be no cotton-grass about, nor any wisps of wool on the heather, the small amount of white in the Golden Plover's plumage is enough to betray it. Still more is this the case with the greater amount of white in the plumage of the somewhat similar Gray Plover.

The sexes are nearly alike in summer plumage, but the female is duller and has less black on the breast. In winter plumage the under-parts of both become white, with a fulvous brown tinge on the breast. Birds passing north in early summer, after our own birds have retired to their moors, are then in full-breeding plumage, and are said to be even blacker on the under-parts than home-breeding individuals. These may attain their summer dress as early as the end of February.

Suitable haunts are wanting in the south-eastern half of England; but in the extreme south-west, in Wales, in much of the north, as well as over most of Scotland and Ireland, the Golden Plover is a familiar nesting-bird on the higher levels. Late in April or early in May the eggs are laid in a mere depression on the moor. They are almost invariably four in number, and resemble the familiar 'Plover's eggs' (really Peewit's, as a rule) of the market—grayish or yellowish green, blotched and spotted with various shades of brown—but are larger in proportion to the bird. Both sexes take part in the incubation, and in due course the young are hatched. These are

active little balls of fluffy down, as golden on the upper-parts as are their parents. (One is figured in the plate of nidifugous nestlings.) In four or five weeks they attain their first plumage, very similar to that of the adults in winter, and at the same time acquire the power of flight.

THE LAPWING, OR PEEWIT

(Vanellus vulgaris).

Plate 26.

The remarks made in the previous chapter on the distribution of our typical British Plovers do not extend to this species—the Green Plover, as it is sometimes called. It is, in fact, an inhabitant of more temperate regions than the Arctic tundras, and is as abundant in our islands as anywhere, and but sparingly distributed as far north as the Arctic Circle. Within our area it is widespread, and even 'lone St Kilda' is visited on the spring passage. From this it will be gathered that the Lapwing is to some extent a migrant, although resident throughout the year in many parts. For one thing, our islands form the winter-quarters, or a part of the road to the winter-quarters, of Lapwings from more northern countries. For another, the species is practically a summer visitor to the inland districts of the north of Scotland. In the north-east of Scotland its spring return is associated with the last blast of winter occurring about the same time, and thence called the 'Teuchit Storm.'

Some at least of our own breeding birds undertake considerable transmarine migrations; a bird hatched and marked in Stirlingshire was recorded from southern France in the following autumn. However this may be, the

Plate 26.

LAPWING OR PEEWIT—*Vanel'lus vulga'ris.*

Length, 12·5 in. ; wing, 8·75 in.

[LIMIC'OLÆ : Charadri'idæ.]

species is abundantly represented at all seasons in the more southerly portions of the United Kingdom.

Low-lying moorlands, and other waste ground to some extent, but ploughed agricultural land more particularly, form the home of the Lapwing. Very marshy or boggy situations are left to the Snipe, and the elevated moors to the Golden Plover. Outside the nesting season the open shore and the estuarine mud-flats afford it congenial feeding-grounds. In these latter places it may be seen in flocks occasionally numbering thousands, and often hundreds, of birds. Soon after they return to their nesting-grounds the flocks break up into pairs, and in many districts every field has its nest. Every one is familiar with the slow and rather irregular flight of the bird, which has proportionately short and markedly rounded wings for a Wader. When a flock is seen in flight at some distance the whole appears to vibrate in a curious and characteristic manner — the reason for the name 'Lapwing.' The widely used popular name 'Peewit' is, of course, an attempt to syllable the bird's persistent and rather monotonous wailing cry. So also are the local variation 'Peesweep' and the Scots name 'Teuchit.' The name 'Green Plover' has already been mentioned. We may remark that it is quite a correct appellation, the species being quite strictly a Plover. The 'Plover's eggs' of the market, too, belong almost entirely to this species. They are not very keenly collected in Ireland, but are systematically taken in many parts of Great Britain. Large numbers are also imported from the Netherlands and from northern Germany. In all the countries mentioned the eggs can be legally taken only up to a fixed date; but we fear that the law is none too strictly enforced in many of our own districts.

To give many details of the nesting economy of the

Peewit seems almost unnecessary, so familiar are they to all. We shall therefore make a brief summary suffice. When the pairs have separated out and taken up their respective stations on the fields or moors the cocks may be observed performing extraordinary tumbling evolutions in the air, uttering special variations of their well-known cry, and producing with their wings in flight a low, resonant humming noise resembling the Snipe's 'bleat,' but not nearly so loud. These manifestations continue to some extent throughout the season.

Nest-making is not a serious undertaking; often a natural hollow, such as a deep hoof-mark, will suffice. More usually the hollow is rounded and smoothed, and a slight lining of dry grasses is often added. In the neighbourhood of the real nest several similar but unlined hollows may generally be found. These are popularly termed 'Cock's nests,' and are formed by the male turning round and round during the time he is 'showing off' to his mate. Eggs may be found by the middle of March, and may be legally taken up till the end of the month. April is, however, the chief month of laying, especially in Scotland. The eggs—grayish or yellowish green, blotched and spotted with various shades of brown—are almost invariably four in number. The percentage of threes, fives, and exceptional sixes, must be very trifling. The eggs are extremely difficult to find, and are usually to be discovered only by mere chance or by very systematic searching. The hen rarely betrays the nest, but runs some distance along the ground before rising. In emergencies she will try to distract attention from her charges by the trick of shamming lameness or a broken wing. The cock's solicitude is displayed in frantic and noisy evolutions in the air.

The nestlings in down are mottled brown above, white

Plate 27.

RINGED PLOVER—*Ægiali'tis hiatic'ola.*

Length, 7·75 in.; wing, 5·25 in.

[LIMIC'OLÆ: Charadri'idæ.]

below, with a black band across the breast. They are adepts at squatting motionless and making themselves almost invisible. They sometimes try to escape detection in this way after they are well able to fly, and may thus be caught. The immature bird's plumage is very similar to the adult's, but the crest is shorter. The adult female's crest is slightly shorter than her mate's, and both old birds have white throats in winter.

THE DOTTEREL

(Eudromias morinellus).

The Dotterel occurs in Britain chiefly as a bird of passage to and from its home on the tundras; but it also nests in very small numbers in the Lake District, the Grampians, and the Cairngorms, always at high altitudes. Collectors are doing their best to drive it even from these haunts, except where the proprietors of the moors interest themselves in its protection. The white gorget, warm chestnut under-parts, and comparatively small size, are points for identification. Of its nesting habits we can only say that three is in its case the normal clutch, and that the eggs have dark markings on a greenish-yellow ground. The name 'Dotterel' is widely misapplied to the next species.

THE RINGED PLOVER

(Ægialitis hiaticola).

Plate 27.

Among the last Waders that we have to deal with is the common representative of a group of small Plovers, characterised by light sandy-brown upper-parts

and dull-white under-parts, the latter broken, however, by a dark collar—technically a pectoral band—which is the most noticeable feature of the plumage. In the adult of the typical species this is a broad blackish band; in the Little Ringed Plover, a rare wanderer to our shores from eastern Europe, it is very much narrower; in the Kentish Plover, one of the most local of our breeding-birds, the collar is incomplete, not meeting in front; in the rather larger Killdeer Plover, an exceptional visitor from North America, where it is abundant and widespread, the collar is double, consisting of two narrow bands crossing the breast parallel to each other.

Here we have a good example of a well-marked genus containing a number of species, showing so much general resemblance that no one would hesitate to say that they had all sprung from a common stock at a comparatively recent date. Thus our genus is a natural group. The species in it, so far as we have enumerated them, differ in no very fundamental respects, but are nevertheless perfectly distinct and easily recognisable. But here comes the difficulty; the very species we have under special consideration is capable of subdivision into two races even within our own area. There is the common form, with us throughout the year, and there is a smaller, brighter, and less 'bullet-headed' race which visits some of our coasts in spring. This latter form must not be confused with the true Little Ringed Plover, a distinct species already referred to.

Now to these two races of the Ringed Plover we cannot logically give the same specific rank that we have already granted to the half-dozen perfectly well-defined forms that we have enumerated. Yet, on the other hand, we cannot refuse to recognise the difference between such races if we wish to make any further progress in piecing

together the history and evolution of the members of our avifauna. The Ringed Plover is in this respect but one of many, and systematists have in recent years come to recognise that species are not indivisible, but may comprise a number of sub-species, local forms, or geographical races—call them what you will. The recognition, however, brings in its train new and more cumbrous systems of classification and nomenclature, without which the systematists could not easily work. It is these innovations in nomenclature which often make the naturalist who concerns himself solely with field-work condemn this subdivision as mere scientific pedantry.

But these races may be said to be possible species in the making, and the study of them is therefore in itself a matter of interest and importance. Indirectly the study of such races may facilitate the study of geographical distribution, migration, and so on. Where the facts concerning a whole species may be too vague and general to reveal much detail, the facts narrowed down to a single race may prove easy to handle and analyse.

As regards general and nesting habits, such closely allied races do not appear to present any notable differences, except of course where the circumstances of the respective areas they inhabit exert an influence. For purposes of the study of habits, then, the field-naturalist may still treat of a species as a whole, as we do in this work.

The Ringed Plover, or 'Sand Lark,' as it is often popularly termed, is essentially a shore-bird, and is seldom to be met with except on the low-lying portions of the coast. In autumn and winter it frequents the sandy shore and the tidal mud-flats of bays and estuaries. At this time it usually assembles in small parties of six or eight, or sometimes in flocks of greater size. We may come across the birds at low-tide, feeding on the mud. Probably, if we are not look-

ing for them, we shall pass them by without a thought; but if we closely scrutinise the flats we shall soon distinguish the birds running about actively, apparently at random, but yet keeping near each other. Every instant some small particle of food is picked up, and the bird darts off in a new direction, only to stop abruptly after a few steps to secure another morsel. Without having recourse to any particular precautions, we may walk up to within a very few yards of them without disturbing them in the slightest. The general direction of their progress will be away from us, and their movements may become more nervous and hurried, but the feeding does not stop. We make some sudden movement, however, and with incredible quickness and unanimity they all take wing, uttering a triple whistling call. Up and down they fly at great speed, turning sharply now and then as if at a word of command. In a minute or two they will alight as suddenly as they rose, and as often as not almost at the same spot. Their quickness makes up for their lack of shyness, but their inconspicuous coloration is their best protection.

The same sandy shores may in summer afford suitable nesting-ground for the Ringed Plover. A patch of dry sand some distance above the high-tide line is all it requires. Often, however, it goes a short distance inland to some dune-covered waste, such as the Terns frequent, or to some low moor bordering an estuary, where it lives alongside Eider-Ducks, Redshanks, Peewits, and other ground-nesters like itself.

Nothing very much in the way of a nest is made—in fact, the eggs are often laid in a mere hollow scooped in the sand or shingle. More usually some slight attempt at a lining is made, a few pebbles being commonly used for this purpose. More ambitious nests are sometimes to be found consisting of hollows very well lined. An instance has been recorded in which the lining consisted of two thousand (seven ounces)

pebbles, which must have been transported from at least twenty yards away. Nests are also lined with broken shells, and sometimes with small bits of stick or even of green herbage.

The eggs are normally four in number, and are of the typical conical form characteristic of Waders. They are buff-tinted or stone-coloured, with small blackish markings. Against either sand or shingle they are extremely difficult to find; but the statement that they actually vary with the nature of the ground requires confirmation. An indirect relation is, however, not impossible. It may safely be said that the Ringed Plover is one of the best examples of protective coloration that we have. Not only are the eggs protectively coloured, but also the birds in all stages of their plumage. The down of the chick is white, with buff and gray mottlings above. As they can, when still very young, run at a perfectly astonishing pace, they are able to scatter well on the approach of danger, and are thus even more difficult to detect than a group of eggs, whose symmetrical outlines and arrangement may catch the eye. The first plumage of real feathers resembles the adult plumage, but has brown where that has black, and has the colours duller generally, including those of legs and bill. The adults are notably different from most Waders, in showing very little diversity of plumage between the two sexes or at different seasons. All the true-feather plumages, then, may be roughly described as sandy brown above and light below. The former hue must obviously harmonise well with either sands or mud-flats. But we know that the whole bird harmonises with such backgrounds, and we can soon call to mind many instances of protectively coloured birds and mammals whose under-parts are of what seems a conspicuously light hue in a stuffed specimen. But under natural conditions, with the light more

or less from above, these parts are thrown into shadow, and therefore appear no lighter than the surrounding ground. An interesting experiment illustrating this point may be performed with dummy pigeons, artificial decoy-ducks, or home-made models. Given a surrounding of slate-gray, say, and a top light, a model bird painted slate-gray all over will always show up with perfect distinctness. One painted slate-gray above and white below will, on the contrary, be very indistinct, and may even be invisible at certain angles.

Then as to the conspicuous pattern of the head and breast regions. Does it diminish the protective effect? Against a surface of perfectly uniform shade it might, but such backgrounds are unusual. Against an ordinary variegated surface—sand or mud, with stones, shells, &c.—such markings may stand out by themselves, but their shape suggests nothing to the eye, and they distract attention from the general outline of the bird, just as we have seen in the case of the Golden Plover.

On the other hand, a bird of uniform hue—or uniform when we take into account the shadow effects on the underparts—will stand out as a whole if it differ in shade ever so slightly from its background. From this we can more easily understand how even some birds of bright but variegated plumage are really protectively coloured.

THE KENTISH PLOVER

(*Ægialitis cantiana*).

The Kentish Plover, a closely related bird of very similar habits and appearance, has already been referred to. It is one of the rarest and most local of our native birds, being found in small numbers on the shingle beaches of Kent and Sussex, from April or May till September, and otherwise

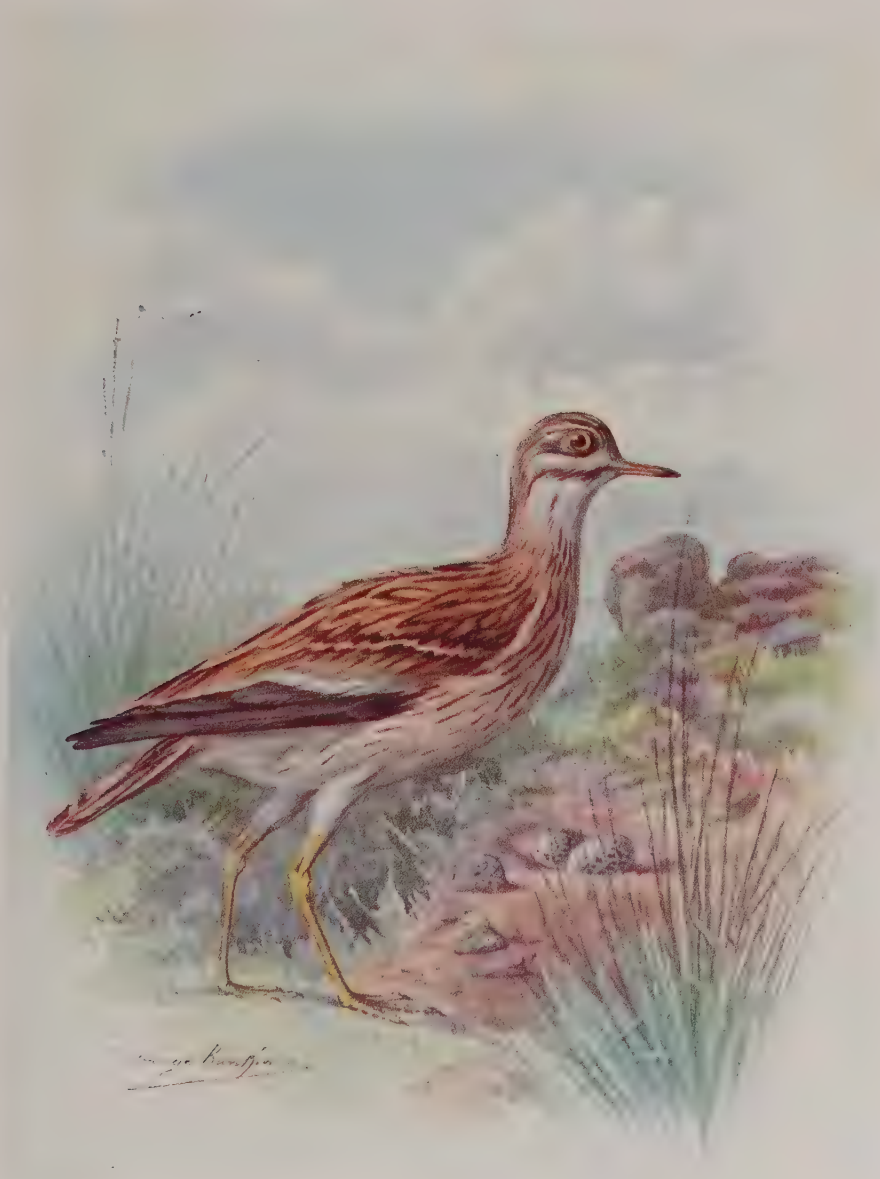

Plate 28.

STONE-CURLEW, NORFOLK PLOVER, OR THICK-KNEE—*Œdicne'mus scol'opax.*

Length, 16 in. ; wing, 9·25 in.

[LIMIC'OLÆ : Œdicnem'idæ.]

not at all in the British Isles (not including the Channel Islands) except as an uncommon migrant.

FAMILY, ŒDICNEMIDÆ (STONE-CURLEWS).

THE STONE-CURLEW, NORFOLK PLOVER, OR THICK-KNEE

(Œdicnemus scolopax).

Plate 28.

The Stone-Curlew, the last Wader on our list, is rather a peculiar one, forming, indeed, so far as British birds are concerned, a family by itself. In general appearance and in many of its habits it betrays its distant relationship to the Bustards. In build it is quite Bustard-like, and its favourite haunts are similar to those of the members of that group—wide, open, stony uplands. From this, and from the loud wailing cry, the name 'Stone-Curlew' is derived. But the species is rather unfortunate in its names, for all the three in common use are in some way inaccurate and misleading. Stone-Curlew is the most usual name, but a 'Curlew' the bird obviously is not. Neither is it a Plover, although the epithet 'Norfolk' is quite appropriate, seeing that East Anglia is one of the British strongholds of the species. The popular name 'Thick-knee' refers to the fact that there are swellings at the *ankle*-joints, most prominent in young birds.

With the typical Wader protective plumage, the Stone-Curlew combines the Bustard-like habit of crouching flat, with neck outstretched, on the ground. At other times the Stone-Curlew will seek to escape by fast running over the plains, the Bustard's usual mode of progression. It

is also quite proficient on the wing. The large round eyes, which add to the strange appearance of the Stone-Curlew, are signs of its crepuscular or semi-nocturnal habits. It is on moonlight nights that the somewhat Curlew-like cry is most often to be heard.

The Stone-Curlew is a summer visitor to the British Isles, being with us from April to October, individuals sometimes lingering till midwinter. Its nesting area is rather limited, and even well within its confines the bird is apt to be very local. The open downs, 'brecks,' and heaths of the chalk-country are its typical British haunts, and the breeding area may be said to include most of the south and east of England and the southern midlands. It is, however, most abundant in the south-eastern counties. To the west and north of England, and to Wales, Scotland, and Ireland, the species is only an occasional wanderer. Before the autumn emigration the birds collect in flocks.

The nest is a mere hollow scraped on the open ground. The eggs may be laid soon after the bird's arrival in April. They are usually only two in number. They are pale buff in ground-colour, with two sets of markings, ash gray and deep brown respectively. Incubation lasts for nearly four weeks, the male taking his share. The down plumage of the active young chicks has a very characteristic pattern of a few longitudinal black stripes running through the sandy-coloured down of their upper-parts; there is also a dark 'horse-shoe' mark on the forehead. They make full use of the crouching habit already alluded to.

Plate 29.

TYPES OF NIDIFUGOUS NESTLINGS.

For key see page 90.

NIDIFUGOUS NESTLINGS.

Plate 29.

Owing to the impracticability of showing young birds as well as eggs in the ordinary illustrations, two extra plates have been added to deal with this important part of our subject. These show typical nestlings of the two groups of Nidifugous (*nest-fleeing*) and Nidicolous (*nest-dwelling*) birds. The division, it may be remarked, is not of any importance for purposes of classification, a varied collection of natural Orders falling into each group, while others display intermediate characters. The various types are discussed in detail under the headings of appropriate species (see INDEX), and it is here only necessary to summarise briefly the most salient features of Nidifugous nestlings. Nidicolous birds are similarly treated at page 225.

Birds with nidifugous young nest on or near the ground. The incubation period is relatively long, and the young therefore emerge from the egg at a well-developed stage. They are open-eyed and down-clad from the first, and are usually strong and active enough to leave the nest within a few hours. Often they require of their parents only guidance and protection, but in other cases they are fed for some time. A few weeks are necessary for the young birds to attain full size. With this comes the completion of the first plumage of real feathers and the resulting power of flight.

The 'Game-birds' represent the highest extreme in the way of early activity and independence. Every one knows that chickens feed themselves from the first, and are quite lively before they are well clear of the shell. Game-birds,

moreover, are exceptional in possessing 'precocious flight.' A set of small flight-quills is developed when the chick is only half-grown, and serves its purpose until that of the first real plumage is ready.

Young 'Waders' are typical nidifugous birds, and show a disproportionate development of leg, associated with their running habits. The same is true of some chicks of the Rail Order, while others resemble the young of the Duck and Diver Orders in taking to the water almost at once.

Less typical are young Auks, down-clad and open-eyed, but comparatively helpless. So also are young Gulls; young Terns are more active, but are for many weeks entirely dependent on their parents for food.

Many peculiarities of the young birds are interesting in that they probably reflect ancestral characters of the species—for example, the short, plover-like beak of the newly-hatched Curlew, and the longitudinally striped down-plumage of many nestlings, well seen in the Grebes. Many other points also arise. Protective coloration is splendidly illustrated by young Waders and others.

The plate shows:

(1) Redshank (Limicolæ: Charadriidæ), showing protective coloration and crouching habit.

(2) Golden Plover (Limicolæ: Charadriidæ), showing protective coloration and disproportionate leg development.

(3) Partridge (Gallinæ: Phasianidæ), showing early set of quills for 'precocious flight' (*see above*).

(4) Mallard or Wild-Duck (Anseres: Anatidæ).

(5) Moorhen or Waterhen (Grallæ; Fulicariæ: Rallidæ).

The Partridge is half-grown; the others are all in the first day or two of life.

ORDER, GRALLÆ (RAILS, &c.);
SUBORDER, OTIDES; FAMILY, OTIDIDÆ (BUSTARDS).

THE GREAT BUSTARD
(Otis tarda).

The natural Order on which we now enter is one composed of three very distinct groups. Only the typical one concerns us to any extent; but before we can deal with it we must first dismiss, with brief mention, the respective representatives of the other two — a single British-breeding species in each case, and both now extinct as such. Four centuries ago the Great Bustard nested on the open lands of England and the extreme south of Scotland. From that time it gradually decreased, and the last record of eggs appears to be about 1838. Allusion has already been made to the general habits of the group, and as this large bird is no longer to be seen coursing over the downs we need not discuss the matter further. The Great Bustard still occurs as an irregular wanderer, and more marked incursions are noted in some winters.

SUBORDER, GRUES; FAMILY, GRUIDÆ (CRANES).

THE CRANE
(Grus communis).

The Crane is believed to have nested in East Anglia down till late in the sixteenth century. It is now a rare wanderer to our islands. The name 'Crane' has long been

popularly misapplied to the Heron, a fact which has to be taken into account in estimating the value of ancient records.

SUBORDER, FULICARIÆ; FAMILY, RALLIDÆ (RAILS).

THE LANDRAIL, OR CORNCRAKE

(Crex pratensis).

Plate 30.

With this well-known bird we enter on our discussion of the few members of the Rail Order that are of any importance as British birds—four species, all of them breeding in most districts of the British Isles. It is not possible to give any account of the general characteristics common to the group, as those which are of fundamental importance are of a scientific nature beyond the scope of this book. In habits the Rails present considerable differences, some of them being land-birds and others being water-fowl. All, however, are markedly skulking in their ways. In appearance they will be found, on consideration, to possess a certain degree of general likeness, difficult to describe.

The typical member of the Order is this bird, which we notice chiefly in early summer, particularly in the morning and the evening, when its striking and characteristic cry commands attention. This cry, if it needs description at all, is scarcely distinguishable from the sound made by sharpening a scythe on a whetstone. As the nesting season advances the cry ceases to be uttered. It is then that we may fully realise how little more than a voice the Corncrake is to us. With the beginning of its period of silence it drops out of our thoughts altogether, and is only very occasionally brought to notice by the slaying

Plate 30.

LANDRAIL OR CORNCRAKE—*Crex praten'sis.*

Length, 10·5 in. : wing, 5·25 in.

[GRAL'LÆ ; FULICA'RIÆ : Ral'lidæ.]

of a sitting bird by the grass-mower in the fields, or by a few falling to the guns of sportsmen shooting over the clover in autumn, for the Landrail is held in great esteem for the table, although of no merit for sport. Even in early summer, when the well-known sound betrays the presence of the bird, we are scarcely more likely to catch a glimpse of itself. At times it will sit extremely closely in hiding, and again it will seek safety in fast running through the long grass or the standing crops. In any case, it will generally prove extremely loath to take wing. When captured, it will very often resort to the trick of shamming death.

Fields of long grass or of standing corn are the usual haunts of the Landrail, and in such places it will in May construct a nest of dried herbage of one sort or another. In this are soon deposited the seven to ten eggs, with their gray and rufous spots on a pale, reddish-tinted ground. As is typical of this order, the young are active from the first, although incapable of flight until about six weeks old. When hatched they are clad in blackish down. This in due course gives place to the immature plumage. This, like the female adult plumage, and the plumage of the adult male in winter, differs very slightly from the adult male's breeding dress depicted in the accompanying plate.

The distribution of the Landrail in the British Isles is wide; but it is almost entirely a summer visitor, although a very few remain through the winter, chiefly in Ireland. That such a notoriously skulking bird and one usually loath to take flight should be a migrant is perhaps rather remarkable. Among the Tartars it has given rise to the belief that every migrating Crane takes a Corncrake on its back. We scarcely require the evidence of observers to assure us that this bird

migrates in quite a normal manner; but yet the idea of large birds carrying smaller ones must not be altogether scouted. A few records exist which appear to show that very small birds sometimes receive a partially 'assisted passage' in this way. That it is ever more than an exceptional occurrence there is no ground for believing.

THE WATER-RAIL

(Rallus aquaticus).

Plate 31.

While the Landrail is but a voice to most people, the Water-Rail is an almost unknown bird. That it is the most elusive of British birds nobody will deny; for, less common and more local than the Landrail, and haunting reed-grown ponds and marshes rather than fields that are as often as not close by the roadside, the Water-Rail is naturally less apt to betray its presence by its cry. This note, called 'sharming' on the Broads, is somewhat similar in nature to the familiar 'Corncrake,' and is persistently uttered for a short period in early summer.

When we do catch a glimpse of the Water-Rail itself, by lucky chance or patient watching, we see a bird not unlike the Landrail in general outline, but with a longer beak and longer toes, the latter giving a wider area on which to support the bird on the treacherous ground it frequents. The coloration, however, is quite different, and is made up of delicate shades of olivaceous browns and greens and bluish grays, with a touch of brightness in the deep red of the beak. Except for the banded flanks, none of the markings are bold or

Plate 31.

WATER-RAIL—*Ral'lus aquat'icus.*

Length, 11·5 in.; wing, 4·75 in.

[Gral'læ; Fulica'riæ: Ral'lidæ.]

outstanding; but the areas of different tints fade gradually into each other, producing a fine harmony of colour. This effect is heightened by the peculiarly smooth and velvety appearance of much of the plumage. The plumage of the adult female is similar to the male's, but duller altogether.

Our most intimate experience of the Water-Rail was when one took shelter in a shed during a stormy night of the autumn migration season. It was brought indoors, and lived on a cork mat floating in a bath for a couple of days, and was then allowed to resume its interrupted journey. To watch it was a delight, for it proved to be unexpectedly graceful in its movements, and astonishingly fearless in the presence of so many of its 'enemies.' There were no frantic flutterings, no vain dashes for liberty, no pitiful beatings against the window, such as one expects from most captive birds. On the contrary, it needed no coercion to keep it on its mat, where it showed no symptoms of alarm beyond a nervous snake-like shooting out and drawing back of the head, and graceful, sinuous movements of the neck. We were again impressed with the perfect 'lie' of the plumage and the delicate gradation of its hues.

Laying may begin early in April, and two broods are probably reared in a season. The nest is of reed-flags and sedge, and is well concealed among the rank herbage of the marshy ground. The eggs, seven to eleven in number, are speckled with delicate red and gray on a creamy ground. The female Water-Rail often sits very closely, and when she does leave the nest it is on foot and by stealth, so that she rarely betrays the position of her treasures. In fact, the bird is at all times as loath to take wing as any of its cousins. The active, nidifugous little chicks that are hatched in due

course are covered with blackish down. A rather curious incident in their early life-history has recently been described. What the explanation is, or whether the circumstances are normal or not, remains to be discovered. In the case of the nest under observation, the newly hatched chicks were removed by the neck in the mother's bill to some place in the neighbouring reed-beds, where they were perhaps under the care of the cock-bird. Soon after, the remaining chicks were removed in a like manner, with most of the shell still round them! Then the remaining single addled egg was taken! The young brood was not discovered, and the whole affair remains a mystery, which can only be cleared up by further observations.

THE MOORHEN, OR WATERHEN

(Gallinula chloropus).

Plate 32.

On every river, on almost every stream of any size, on every reed-grown pond or lake throughout the British Isles, the familiar Waterhen may be found swimming and diving unsuspectingly, or skulking in concealment among the herbage in the shallows, flying with bold, heavy flight, or sitting quietly on its firmly built nest. Even in semi-captivity it will not only live, but also nest and rear its young on the smallest of ornamental waters. Everywhere it is a general favourite, except with those whose interests are prejudicially affected by its actions.

The name 'Waterhen' is perhaps the best-known name of this species; but ornithologists generally give preference to another, that of 'Moorhen.' In this term

Plate 32.

MOORHEN OR WATERHEN—*Gallin'ula chlor'opus.*

Length, 13 in.; wing, 6·75 in.

[GRAL'LÆ; FULICA'RIÆ: Ral'lidæ.]

the word 'moor' is used in its older and etymologically truer sense of 'marsh' or 'mere.' Nowadays 'moor' is seldom used except in the sense of heath-covered uplands, and in this sense the names 'Moorcock' and 'Moorhen' are sometimes popularly applied to the Red-Grouse.

It is often before March is out that the first clutch of eggs is laid. The nest is a well-made, cup-shaped structure of dead rushes and flags, and is placed among the herbage or reeds or even low branches above or close to the water. The flags growing around the nest are often bent over it to form a sort of concealing canopy. Several nests are for some reason built, or partly built, by one pair of birds. In case of flooding the eggs are said to be transferred to one of the nests in a safer position. At other times the original nest is added to in a similar emergency. The eggs are from half-a-dozen to nine or more in number, and are buffish stone-colour with reddish-brown spots. Three weeks are required for incubation, and then the chicks emerge. They are wide-awake and active little creatures from the very first, and are provided with a covering of black down. Within the first few hours they take to the water, and from the start propel themselves skilfully; but it is not till they become older and have had much practice that they are proficient in diving.

In connection with the chicks leaving the nest thus early a curious point arises. At times the Moorhen will nest in a tree by the lake-side, and may select a position as much as twenty feet above the ground. This is all very well for the adult Moorhen, strong on the wing and perfectly able to perch on the boughs, but what of the chicks? We can easily discover that they do not become nidicolous and inhabit the nest till they

can fly, as ordinary tree-nesting species do. It is manifestly impossible for the chicks to climb down. Do their parents carry them down, and if so—how? The question has been much discussed in connection with certain Ducks whose habits present a similar problem. Actually to observe the deed is the obvious method of solution; but it may be difficult to come upon the birds at the critical moment. We have heard a description from one who had the good fortune to discover a young Moorhen in the very act of quitting a nest at a considerable height above the ground. This chick simply *walked off the nest*. Its last stride was a sheer drop, but on reaching the ground it picked itself up and continued its way apparently none the worse of what our friend called 'its first great step in life.' A newly hatched Moorhen's wings are of no service, even to check the rate of fall, and there is indeed nothing to keep the bird from falling like a stone and reaching the ground with very considerable velocity. The momentum of such a light body, however, will be small, and the impact slight. Given soft herbage or perhaps water to fall on, we can therefore quite understand that the chicks may always be as successful as in the case observed, and it may well be that what was seen is the ordinary mode of descent.

The same pair of Moorhens will rear two and frequently three broods in the year, and it is a curious point that the young of the earlier broods are not driven away, as is the case with most double and treble brooded species. These earlier young birds are even said to assist in the nesting duties for the later broods. However this may be, the old Moorhens may certainly be seen late in the season attended by young birds of three distinct ages.

The immature birds differ from the adult in being duller in hue, with the throat white and the underparts ash gray. The whole beak and frontal plate is dark green, as are the legs, the red 'garters' being absent. The sexes are alike in plumage. The Moorhen swims in a characteristic jerky manner, and dives very skilfully. The toes are long, like the Water-Rail's, and are provided with fringes, which increase the propelling surface.

On the wing, as we have remarked, the Moorhen moves with a heavy but strong flight. Like its two allies already discussed, it is something of a migrant, although generally rather loath to take wing when other means of progression are available. The loud grunting call may sometimes be heard overhead on still autumn nights. The Moorhen's diet is varied, being partly animal and partly vegetable, and including worms, grubs, insects, grass, and grain. In the nesting season, however, it becomes a sad robber, showing a great weakness for the eggs of other species. These it breaks open and sucks. Nestling-birds are also devoured with eagerness. A colony of Black-headed Gulls is often infested by several families of Moorhens, which, in an unostentatious way, levy a heavy toll of eggs and young. Other young birds are said to be slaughtered for no apparent reason. A duckling, for instance, which has lagged behind its parent may be set upon and quickly battered to death, only to be left a floating corpse. For these reasons preservers of waterfowl look on the Moorhen with no friendly feelings. Even with the old birds of some of these species it will prove to be very jealous and pugnacious, while among themselves at nesting-time Moorhens will guard strictly what they conceive to be their own particular portions of the lake.

Several exotic species of Waterhens and Gallinules are known in this country as inhabitants of ornamental waters, or as escapes therefrom.

THE COOT

(Fulica atra).

Plate 33.

The Coot is in a general way very similar to its ally the Moorhen, which we have already discussed, but it is a decidedly larger bird, and is built on heavier and clumsier lines. Apart from the size, the patch of bare white skin on the forehead, from which the popular name 'Bald Coot' has arisen, serves as a ready means of identification, even at a fair distance.

The habits of the species also resemble those of the Moorhen. The Coot is, if anything, the more aquatic of the two, and instead of skulking on or near the bank to a great extent, it spends most of its time on the open water. This it is enabled to do in safety seeing that it favours comparatively large stretches of water—lakes, as a rule, or very large ponds, or sluggish reaches of fair-sized rivers. In such haunts Coots may be seen at all times of the year, floating lazily, diving for food, occasionally rising to chase each other, half-flying, half-splashing along the surface. In fact, the Coot does not often rise into proper flight, although it can fly strongly, if heavily, on occasion, the legs being allowed to hang. At diving it is very expert, and the toes have lobe-like flaps which increase their area. This is a stage nearer complete webbing than the narrow fringes on the Moorhen's toes. Coots are at all times both wary and quarrelsome, and even when they are floating undisturbed they are

Plate 33.

COOT—*Fu'lica at'ra.*

Length, 15 in.; wing, 8·5 in.

[GRAL'LÆ; FULICA'RIÆ: Ral'lidæ.]

M 100

continually uttering their curious cry, characteristic, but difficult to describe. It is something between a grunt and a squeak, if that conveys anything; and carries for a long distance across the water.

The Coot is found on such waters as we have described throughout the British Isles. It seems to be to some extent only a summer visitor to Shetland, but it is otherwise practically resident, except that in winter it is forced to abandon many ice-bound lakes for the nearest tidal waters. In winter it shows a gregarious tendency.

The Coot is an early nester, laying in March or April. The nest is an exceedingly firm and substantial structure of flags and the like, rising a foot above the water, and is placed in a reed-bed or some other concealed situation. The eggs, seven to ten in number, are of course larger than the Moorhen's, but the colour is similar. The markings are darker and much smaller.

The chicks resemble the Moorhen's, being covered with the usual black down and having similar habits. The ornaments about the head are red, and it is a very interesting point that this feature, characteristic of both the nestling and adult Moorhen, should show in the very young Coot, though absent in later life. It is also of some note that while the down covering and adult plumage of the Coot are both dark in colour all over, the intermediate immature plumage has the under-parts gray and the throat nearly white; the bald patch, too, is smaller.

ORDER, GALLINÆ ('GAME-BIRDS');
FAMILY, TETRAONIDÆ (GROUSE).

THE RED-GROUSE

(Lagopus scoticus).

Plate 34.

Two points in connection with the species we are about to describe give it a quite exceptional interest to inhabitants of the British Isles. The first is its unique status in our native avifauna, and the other is the extraordinary importance attaching to the Red-Grouse as an object of sport. The latter question we shall very briefly discuss at a later stage. As regards the former, the Red-Grouse is the only species of bird, or indeed of higher animal, which is indigenous to the British Isles, and to the British Isles alone. Within our area it is rather widely distributed, and is exceedingly abundant in some parts. On the Continent it is quite unknown. Being quite sedentary, it does not occur even as a wanderer. On the other hand, there is on the Continent a closely allied bird, the Willow-Grouse, or Norwegian Ryper, not indigenous within our area, although introduced in places and abundant in our markets in winter under the name of 'Ptarmigan.' The Willow-Grouse resembles our true Ptarmigan in having a white winter dress; but there can be no doubt that it is more closely allied to the Red-Grouse. In fact, the two species must be considered as having been derived from a common stock, which originally populated the whole of northern Europe, perhaps at a time when our islands were joined to the mainland. Since then the Red-Grouse has dropped the white winter dress

Plate 34.

RED-GROUSE—*Lago'pus scot'icus.*

Length, 15 in.; wing, 8·25 in.

[GALLI'NÆ: Tetraon'idæ.]

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to suit the milder conditions of our climate. Whether the Red-Grouse has earned the right to specific rank is the disputed point. Some authorities hold that since it 'invariably breeds true, admits of an easy *diagnosis*, and has a definite geographical range,' it may therefore be regarded as a separate species, although its common origin with the Willow-Grouse is by no means disputed. Others hold that the differences are insufficient to warrant its being considered more than a geographical race. If this latter view be accepted, the unique position referred to is of course destroyed, inasmuch as a score or more of species have geographical races peculiar to our area. But we may safely say that the differences in these other cases are much slighter, so that the Red-Grouse, if not alone, is at least foremost in this respect. To enter further on the merits of this question of rank is beyond our scope, more especially as we have no concern with the Willow-Grouse. But we may mention that for present purposes we shall adhere, for convenience if for no other reason, to the old custom of speaking of the Red-Grouse as a species.

With the Red-Grouse we enter on a well-marked natural Order, of which it is a quite characteristic member. 'Gallinaceous birds' we should strictly call them, but for the British Isles the name 'Game-birds' is a more convenient popular title. The half-dozen species we have to deal with here are all so well known, and their common characteristics are so obvious, that we do not need to make any general remarks on the group as a whole apart from what we may incidentally mention in the course of the chapter. But we must remark that although 'Game-birds' forms a very convenient and at the same time appropriate name for the group, it is neither the case that it includes all our

game-birds, even in the strictest sense, nor that all British members of it are 'game.' For the Bustard was 'game,' and the Quail is not strictly so, although enjoying some of the privileges of protection also extended to other birds which are objects of sport, such as the Woodcock and Wild-Duck.

The Red-Grouse, as we have remarked, is of sedentary habits, and does not wander beyond its breeding area. This embraces all suitable parts of Scotland, including the Outer Hebrides and Orkney, but not Shetland; and in that country, especially in the Highlands, the species has its chief stronghold. Over most of Ireland and the north of England it is also well distributed, and in the northern English Midlands and in Wales it is found more locally. From the south of England it is quite absent, and attempts to introduce it in Surrey and elsewhere have been unsuccessful. Everywhere heather-covered moors are its favourite and typical haunts, although in winter it is forced to forsake the higher levels. Even in summer, two thousand feet practically limits its ground, the very highest levels being left to the next species. The names 'Moorfowl,' 'Moor-Game,' 'Moorcock,' and 'Moorhen' are popularly applied to the Red-Grouse, the last of these rather unfortunately, as we have seen. The word 'Grouse' is a general name for this family of Game-birds; but when used in this country without qualifying adjective it refers to the present species. Originally it appears to have belonged to the Black-Grouse, which is now usually called by other names.

Unlike some Game-birds, the Grouse is monogamous. Pairing takes place rather early, and the eggs may be laid by the second half of March, although usually not till April. They are from eight to ten or more in number and are laid in a scantily lined hollow among the heather.

They are buffish white or yellow, thickly covered with reddish-brown spots. The cock remains loyally by his mate throughout the season, in strong contrast to the males of polygamous Game-birds. The hen is very faithful to her duties, often sitting very closely in the presence of danger. At all times Grouse that have not been much disturbed are inclined to trust to their protective coloration, and to escape notice by squatting or by running through the heather. When 'flushed,' the cock rises with a loud cackle. He has also a loud, prolonged crow, uttered evening and morning from the eminence of some hillock or bundle of peats. 'Go, go, go, go, go back, go back,' it is syllabled. The hen has a low, short croak.

The chicks of the Grouse are typical of the Order. They are hatched in an extremely advanced state, being able to run about and find food for themselves at once, as in the case of that familiar member of the Order, the domestic fowl. The down plumage is of a buffish hue above, except for the chestnut crown and the dark longitudinal stripes down the back. These stripes are characteristic of the chicks of the Order. Another and more notable feature presented by young Game-birds is the power of 'precocious flight.' Most nestlings are full grown when a few weeks old, and only then possess fully developed flight feathers as part of their first real plumage. But young Grouse and other Game-birds have a miniature set of flight feathers when only half-grown. These are replaced by others of suitable size at the time when other birds receive their first set. This is of course an advantage to the young birds, but has also its drawback. A brood able to fly is liable to be scattered too much, and some of the chicks may thus be lost while yet not wholly able to fend for themselves. The cock Grouse assists in looking after the young brood.

The plumage of the Grouse is extremely variable. The cock exhibits three colour-phases—'first, a red phase without spots, found in the low grounds of Ireland, the west of Scotland, and the Outer Hebrides; second, a rare black phase, in which the plumage presents an intermediate character between the first and third types; and, third, a white-spotted form, occurring in the high grounds of the north of Scotland. In the hen five phases occur—namely, a red, a black, a white-spotted, a buff-spotted, and a buff-barred; the red and black phases being rare, the buff-spotted the commonest, and the buff-barred type occurring in the south of Ireland.' The hen is smaller than the cock, and has the red crescent of bare skin above the eye reduced.

These variations are confusing enough, but the matter is still further complicated by the bewildering nature of the seasonal moults and changes, which differ with the sex of the birds. 'The *male* has no distinct spring plumage, but has distinct autumn and winter plumages, and retains the latter throughout the breeding season. The *female* has a distinct spring plumage, which is complete by the end of April or the beginning of May, also a distinct autumn plumage, which is retained till the following spring. To put it more concisely, both male and female have two distinct moults during the year; but in the male they occur in autumn and winter, and in the female in spring and autumn, the former having no distinct spring and the latter no distinct winter plumage.' A recent writer on Game-birds gives a different version of the sequences, but the above summary is the result of the very careful and extensive labours of our greatest authority on the group, and is confirmed by other observers, who agree 'that without doubt the male breeds in his winter plumage.'

Owing to the special interest and importance of the species we have already overstepped the usual limits of a

Plate 35.

PTARMIGAN—*Lago'pus mu'tus.*

Length, 14·5 in. : wing, 7·75 in.

[GALLI'NÆ : Tetraon'idæ.]

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chapter, and cannot therefore discuss the question of grouse-disease, important though it be. The matter is a difficult one and by no means thoroughly cleared up. The disease does much havoc, occurring in epidemics, probably aggravated by, if not partly due to, overcrowding of areas under the very efficient methods of preserving. The first recorded outbreak appears to be for 1815.

The sporting side is also beyond our scope, and we need only refer to it very briefly. An enormous economic importance attaches to the Grouse because of the great amount of money that changes hands through it in one way and another. As every one knows, the shooting season opens on 12th August, lasting till 10th December. The usual method of shooting nowadays is to have the birds driven across a long line of 'butts' made of peats or other material, behind which the members of the party and their loaders are concealed. Many sportsmen prefer the simpler method of going out alone or in a small party and tramping over the moors, putting up their own birds with dogs. Fewer birds are got, but enjoyment should not be measured by the size of the 'bag.' Rather the reverse, for is it not the essence of true sport that there should be some approach to equal chances on both sides?

THE PTARMIGAN

(Lagopus mutus).

Plate 35.

Although the second British representative of this genus—namely, the Ptarmigan—is a more distant ally of the Willow-Grouse, it has with it one point in common which is not shared by the Red-Grouse. This is the white winter plumage specially adapted to a life amid the

mountain snows. The Ptarmigan is rather smaller in size than the Grouse, and may always be readily distinguished by the fact that the primary wing quills are white in all plumages except that of the chick. The Ptarmigan, however, goes through no less than three distinct phases of plumage annually, and in each the sexes present considerable differences! The male in autumn differs from the male in summer, as shown in the plate, chiefly in having the upper-parts gray, lined with black. In winter the plumage is mostly white; but all the tail-feathers, except the central pair, remain dark, and there is a black line through the eye. The red wattle and black bill also remain. In summer the plumage of the hen is chiefly yellowish brown barred with black, and the autumn plumage is browner than the males. In winter it lacks the black line through the eye which characterises the male at that season, and the red wattle is always absent.

Unlike the Red-Grouse, the Ptarmigan is widely distributed. It is most abundant on the Scandinavian fjelds, but is also found in northern Russia, the Alps, and the Pyrenees. The nearly related Rock-Ptarmigan inhabits suitable portions of Greenland and North America, and there are other species. Within the British Isles, the Ptarmigan is confined to the Scottish Highlands, where it is almost entirely restricted in summer to the highest levels, the barren 'region of stones' above the limit of even heather growth. In autumn the birds 'pack,' and in winter seek rather lower levels. There is very little evidence to support the assertion that the Ptarmigan was formerly found in the southern portion of Great Britain, and the same may be said of Ireland. The identification of certain bones found in Irish cave-deposits is regarded as very far from definite. A recent attempt to introduce the species into the north of Ireland met with no success.

In general and nesting habits the Ptarmigan resembles its congener. The eggs are laid a month or so later, and are lighter in colour and less densely spotted. The chicks are similar, but of a more chestnut tint.

In Scotland the Ptarmigan is shot at the same season and in the same manner as the Red-Grouse, and it is also liable to the grouse-disease.

It is as regards its plumage that the Ptarmigan is most interesting. We may safely say that it presents one of the finest examples of 'protective coloration'; for each season it has a garb perfectly suited to its natural surroundings. It reaps the full advantage of this by its habit of sitting exceedingly closely, and trusting almost entirely to concealment to escape its enemies. Thus the traveller in the mountains may find himself in the very middle of a flock before he is aware of it. On their nests, too, in summer, the birds may usually be very closely approached without their rising. At times, between seasons as it were, they may suddenly find themselves brown specks on a white landscape. Then they become exceedingly wary and difficult to approach, which is an interesting point in the discussion as to what actual knowledge and appreciation of the value of their coloration the birds themselves possess.

This plumage-change of the Ptarmigan and the Willow-Grouse has its analogy in the variations of the Mountain Hare, the Stoat or Ermine among our own mammals, and the Arctic Fox. These, however, frequently assume no white coat in winter in the more southern portions of their range. Experiments, too, have been made with regard to the direct influence of various conditions on the assumption of winter plumage in certain birds; but the problem is not yet solved.

In addition to the birds and mammals we have already

mentioned, we may name a few which have a permanent coloration suited to a snowy environment: Arctic Hare, Polar Bear, Greenland Falcon, Snowy Owl. There are also some others. The two last-named are winter rarities in the British Isles; both are large birds of prey with a plumage mainly white, and flecked with light brown.

Now all these, birds and mammals, whether the snow-garb be permanent or seasonal, may be divided sharply into two classes—the predaceous, and those preyed upon. The former class includes the Bear, the Fox, the Falcon, and the Owl; the latter, the Hare, the Ptarmigan, and the Willow-Grouse. In one set the coloration is aggressive—a cloak to conceal attack; in the other protective—a means of escape. Thus, as one writer has graphically put it, 'The Ptarmigan may be crouched upon a drift, but it must ever be on the alert, lest from amid the snowflakes a white death come suddenly upon it. Nature is terribly just in her plan of life's battles.'

THE BLACKCOCK, OR BLACK-GROUSE

(Tetrao tetrix).

Plate 36.

As in the case of the Ruff and the Reeve, the male and the female of this species are generally known by quite distinct names—'Blackcock' and 'Grayhen.' We may speak of them collectively as 'Black-Grouse' or 'black-game,' or apply the name of the male to the species. The difference in name is an indication of the unusually great difference between the plumage of the sexes, perhaps more marked than in any other British bird. It is not merely a matter of colour—more striking differences of that sort occur among the Ducks; but the

Plate 36.

BLACKCOCK OR BLACK-GROUSE—*Tet'rao tet'rix.*

Length, 23 in. ; wing, 10·3 in.

[GALLI'NÆ : Tetraon'idæ.]

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shape of some of the feathers—those of the tail—is entirely different. The Blackcock's lyre-shaped tail, with the white under-coverts showing in the notch, is well known; the Grayhen's tail is merely notched. The cock's 'lyre' is not fully developed until his third year, but he attains his black plumage in the first winter. Earlier in the season the immature birds of both sexes resemble the adult Grayhen. Barren—presumably old—Grayhens attain a plumage similar to that of the adult male, a phenomenon paralleled in some other species of game-birds as well as among birds of prey, and probably others.

The Black-Grouse is to be found rather locally in suitable parts of the south of England, the Midlands, and Wales, although only as an introduced or re-introduced species in some parts. Over most of Scotland, including many of the Inner Hebrides, it is more regularly and abundantly distributed. But it is one of the striking differences between the fauna of Great Britain and that of Ireland that this species is altogether absent from the latter island. Attempts to introduce it, moreover, have always ended in failure. Possibly the mild, damp climate has a deteriorating influence on this hardy bird. Attempts to introduce it in the Outer Hebrides and in Orkney have also failed; but suitable haunts are altogether wanting in these places. For, unlike the two preceding species, it is no bird of the open moorland, but a frequenter of wooded country, such as abounds in the central Highlands. It perches on trees freely, walking securely enough on the branches; but it nests and roosts on the ground.

In another more important respect the Blackcock also differs from the Red-Grouse and Ptarmigan cocks, for he is polygamous. Young Grayhens mate in their first

spring, but Blackcocks of the same age are usually defeated and driven off by older birds. During the season of the 'lek' or 'spel' the Blackcock is very pugnacious, and indulges in furious combats, frequently joined in by several birds. 'Although destitute of spurs, it fights in the same manner as the domestic cock, lowering its head, erecting and spreading its tail, and leaping against its adversary, endeavouring to drive him off and if possible tear him to pieces. The combats, however, are less bloody than those of our game-cocks, although they are engaged in with so much earnestness that an unscrupulous fowler might easily carry destruction among the gallants. A cock who has beaten off his opponents from his favourite station betakes himself to it morning and evening, and struts in a pompous manner, with spread tail, and stiffened wings rustling against the ground, calls aloud with a harsh grating voice, and invites the neighbouring females, or rather challenges those of his own sex within hearing to come forward and dispute his claims to the favour of his elect brides. When this season of excitement is over, the males, forgetting their animosities, meet together, and endeavour to recruit their diminished energies by following their ordinary occupations in peace.' The great Scottish ornithologist Macgillivray, who penned the above description three-quarters of a century ago, compared this friendly association of the males at times when they were not engaged in fighting furiously, with the similar habits of some polygamous mammals, such as Red-Deer. The Blackcock has also a short period of 'spel' in autumn.

The nest is a hollow on the ground, lined with leaves or similar material. In this from six to ten or more eggs are deposited. They have orange-brown spots on a brownish-yellow ground. The nestlings are covered with

Plate 37.

CAPERCAILLIE—*Tet'rao urogal'lus.*

Length, 35 in. ; wing, 14·5 in.

[GALLI'NÆ : Tetraon'idæ.]

buffish down, with indistinct darker mottlings on the back. The crown is chestnut, and there are black stripes behind the eyes, characteristics which distinguish it from the chick of the next species. The males take little or no part in the duties of the nesting season, and are, in fact, already in flocks before it is well over.

Black-game shooting lasts from 20th August (1st September in Devon, Somerset, and the New Forest) till 10th December. Early in the season the birds sit rather closely, but later on they become very shy and wary. Unlike the Red-Grouse, the Blackcock usually rises without calling.

THE CAPERCAILLIE

(Tetrao urogallus).

Plate 37.

A much larger bird than the Blackcock, but one in many ways similar as regards appearance and habits, is the Capercaillie. A very considerable difference, more of size than of plumage, however, is noticeable between the sexes in this species. The female resembles the Grayhen in a general way, and is not very much larger. The tails of both sexes of the Capercaillie are rounded, and afford a ready means of identification. The cock is at once distinguishable by his great size alone. He measures almost three feet from tip of beak to end of tail, and may weigh anything from ten to seventeen pounds! His mate is fully ten inches shorter, and scales only five or six pounds.

The Capercaillie's right to be considered a real British bird is rather a 'nice' point. The facts are that the Capercaillie was formerly an inhabitant of the pine-

forests of the British Isles. Probably owing to the felling of these forests, among other causes, it had become scarce by about the middle of the seventeenth century. During the following century it became extinct, 1760 in Ireland and 1770 in Scotland being the approximate dates of the last records. The Capercaillie has therefore an undoubted right to a place as a former British-breeding bird; but it has in addition its status as a successfully reintroduced species. It is probable that a few birds continued to exist in the British Isles for some years after the dates mentioned, but it cannot be doubted that they had completely died out long before the first introduction from Sweden in 1837. The indigenous strain is therefore totally extinct.

Perthshire and Forfarshire have been the areas of naturalisation of these foreign birds; but from these localities they have now spread over the greater part of the central division of Scotland, and the spreading is still continuing prosperously under the modern methods of game-preserving. Indeed, in some areas the pine-forests are fully stocked, and the birds are beginning to occupy the less congenial haunts of oak and birch woods. One interesting point about the spread is that the hens appear in a new area a couple of years before any males are seen. During this period they mate freely with Blackcock and others. Hybrids between various British Game-birds occur pretty frequently, it may here be mentioned.

That the hens should be the first to colonise new areas is all the more remarkable because the cock Capercaillie, like his smaller cousin, is polygamous. One would expect young males unable to procure mates to be the first to roam. In other respects the nesting habits of the two species are also very similar. The cock Capercaillie has a similar 'spel'; his mates each lay from six to twelve

Plate 38.

PHEASANT—*Phasia'nus col'chicus.*

Length, 36 in.

[GALLI'NÆ : Phasian'idæ.]

eggs in a hollow scraped in the ground, usually at the foot of a tree; the eggs are very little larger than those of the Grayhen, and are somewhat similar in colour, but of warmer and richer tint. Incubation lasts about a month. The slight differences between the chicks have already been noted.

The name 'Capercaillie' is a Celtic word, so corrupt as to be of doubtful derivation. It has been variously rendered as 'bird'-, 'goat'-, 'old-man'-, and 'horse-of-the-wood.' What significance might attach to the last version we are not aware. The word is often spelt 'Capercaillzie;' but, it should be noted, this makes no difference to the pronunciation, as the 'z' is mute.

FAMILY, PHASIANIDÆ (PHEASANTS, &C.).

THE PHEASANT

(Phasianus colchicus).

Plate 38.

The Pheasant has really no right to be included in the list of wild British birds, or to receive a place in this book. But owing to its importance it is usual to give it a place as a 'naturalised subject,' and we shall not attempt to break through this accepted custom further than to curtail our discussion of the species. In any case, there is little of note to be said of the Pheasant except from the point of view of sport, and that is beyond our present purpose.

The objections to regarding the Pheasant as a British wild bird are three in number, and we may detail them here, seeing that they are all points of importance in connection with the history of the bird. First and most import-

ant is the fact that the Pheasant is not a native of our islands, but has been imported by human agency. The date and other circumstances of its introduction into England are unknown, but it appears to have been previous to the eleventh century. The first notices we have of it from Scotland and Ireland are from the sixteenth century. The species has been similarly naturalised in most European countries, but is probably truly native in none of them but the Balkan States. Asia Minor and the neighbouring countries are the other parts of its original area, as is vaguely indicated by the scientific names.

The second objection is that the Pheasant lives under semi-domesticated conditions for the most part, so far as the British Isles are concerned. Except for the period of four months, 1st October to 1st February, during which it is shot, it is pampered in every possible way. It is protected from disturbance, it is given food, and its natural enemies, true British birds and beasts, many of them of a far nobler order, are ruthlessly shot down to save this alien the trouble of taking care of itself! In the nesting season this is still more apparent. Many more Pheasants' eggs are hatched under domestic fowls or in incubators than in the natural way. The young birds are then reared under human supervision and turned out to get wild enough to be shot! Much of this seems to put Pheasant-shooting beyond the limits of the best traditions of sport. Among points put forward in its defence is that a Pheasant well on the wing, whatever the nature of its upbringing, is no easy mark for the gunner. Another point of interest in connection with this semi-domestication of the Pheasant is that the cock has *become* polygamous. As with others of similar habits, he makes a bad father; but he has sometimes been detected taking a share in the nesting duties. This adoption of polygamous habits is

exactly paralleled in the domestication of the Duck, as we shall presently see.

Thirdly, during recent years, a number of other species of Pheasants have been introduced from the East. Some of them produce quite fertile hybrids with the original birds, and the result is that it is very doubtful if a pure-bred *Phasianus colchicus* is to be found in the length and breadth of the United Kingdom. Chief among the later-introduced species is the Chinese *P. torquatus*, which is responsible for the white collar now found on almost all our Pheasants. A more nearly pure-bred bird, however, is portrayed in the accompanying plate.

The Pheasant is widely distributed in the British Isles. It is a woodland species, roosting on trees, but nesting on the ground in thick coverts. Leaves are the chief material used for the slight nest. The light olive-brown eggs number from ten or so upwards. Two or more hens often lay and incubate amicably together. Joint nests also occur with a Partridge or even a Teal! Incubation lasts twenty-three to twenty-four days, and the active chicks are buff-coloured, with a few broad, dark, longitudinal stripes on head, neck, and back. Immature birds resemble the hen.

The Pheasant family also includes some truly British representatives, presently to be discussed. Among readily noticeable differences from the Grouse family are the unfeathered legs and feet. Spurs are present in some species.

THE PARTRIDGE

(Perdix cinerea).

Plate 39.

The common or gray Partridge is perhaps the most familiar Game-bird to the majority of people, because it does not haunt the distant moorland or the strictly guarded coverts, but has its home on the open low ground and on agricultural land of all sorts. There it is a most familiar sight, squatting, running, hiding again, or somewhat reluctantly taking wing with a low, heavy, but rapid whirring flight. Still more familiar, perhaps, is its loud, harsh cry. It begins with a drawn-out note as rasping as the Corncrake's, and ends with a sort of cluck. Well has the poet described it as 'Like a rusty key turned in a lock.' It is heard more often at morn and at dusk than during the day.

The Partridge is abundant and widespread in England; less so in Ireland. In Scotland it is rather local, the higher grounds and outlying islands not being suitable to its habits. Whether the Partridge is as strictly sedentary as our other Game-birds appear to be is very doubtful. Abroad it has occurred on the island of Heligoland, and some of the continental races are certainly migratory. Little attention appears to have been given to the question as regards the British Isles.

The Partridge is monogamous, pairing early in the year. Late in April or early in May the eggs are laid in the usual slight nest on the ground. They may number a dozen or so; the much larger clutches often recorded are always under the suspicion of being the produce of more than one hen laying together, as

Plate 39

PARTRIDGE—*Per'dix cine'rea.*

Length, 12·5 in.; wing, 6 in.

[GALLI'NÆ: Phasian'idæ.]

Pheasants certainly do. We have already mentioned the occurrence of joint nests of Pheasant and Partridge. The eggs resemble those of the Pheasant, but are much smaller. The chick in down is grayish buff tinged with chestnut; there is an imperfect loop of black on the head, and a central, double dark line, and two others, along the back. Like other Game-birds, they possess 'precocious flight,' and it must be a point of common observation that a family 'covey' including young only half-grown is able to take wing.

The immature birds are very similar to the adults; but the young hen possesses the 'horse-shoe' mark characteristic of the male and absent from the plumage of the adult female—a rather curious fact. Hens of all ages are distinguishable by the buff *cross-bars* on the wing-coverts. The sober-hued plumage of this species is rather subject to variation, showing chiefly in young birds, and apparently indirectly connected in some way with the nature of their native soil. Albinistic varieties occur at times, and a rare and curious chestnut (erythritic) phase has attracted some attention lately.

Partridge shooting lasts from 1st September to 1st February in Great Britain, but only from 20th September to 10th January in Ireland.

THE RED-LEGGED PARTRIDGE

(Caccabis rufa).

The Red-legged or 'French' Partridge is, like the Pheasant, only an introduced species in the British Isles, and an introduction of a much later date. Indeed, it has not yet been naturalised for a century and a half. This, and the fact that its distribution is

somewhat restricted, although including much of the south-east of England, notably East Anglia, must preclude more than a mention of the species here. The extremely variegated plumage of the adults makes them quite unmistakable; but young birds are frequently thought to be hybrids between this and the preceding species. The eggs are of a yellowish colour, spotted with reddish brown.

THE QUAIL

(Coturnix communis).

The Quail scarcely requires to be described, but we may notice that it is in many ways a miniature Partridge. The cock is rather smaller than his mate. The Quail is notably migratory; some individuals may remain with us during the mild winters, but the species is chiefly a summer visitor to the British Isles, over which it is well but locally distributed. In Scotland it is very local; but the localities are widespread, including at times the Hebrides and Shetland. The numbers vary greatly from season to season; great increases sometimes occur and affect several successive seasons. But there has also been a great permanent falling off in numbers. This is not traceable to local influences to any extent, and is probably a consequence of the wholesale netting that goes on in the south of Europe. Thousands are brought alive in little cages to London, Paris, Vienna, and other cities, for table purposes, from the countries where this bird is an abundant and familiar migrant. As one writer puts it, 'Immense flocks annually visit the countries bordering on the Mediterranean; especially on the spring migration, when, as of old in Sinai, multitudes come up in the night and cover the land.'

ORDER, PTEROCLETES (SAND-GROUSE)

FAMILY, PTEROCLIDÆ (ONLY FAMILY).

PALLAS'S SAND-GROUSE

(Syrrhaptes paradoxus).

This bird is an inhabitant of the steppes of Central Asia; but at intervals extraordinary emigrations have occurred, perhaps as a result of overcrowding of the bird's proper area, in the same manner and with similar result as in the case of certain mammals, such as the Lemming of northern Europe. These overflows have made themselves apparent to us as periodical irruptions of great numbers of Sand-Grouse over the greater part of Europe, even as far as our own islands.

After some of these irruptions new colonies have been established beyond the former Asiatic range; but, as far as northern Europe has been concerned, the wanderers greatly overshot their mark, and soon perished or were driven away by the humidity of the climate and by human persecution. During one of the greater irruptions, however, the species gained a nominal right to a place on the British-breeding list. Invasions took place in 1859, 1863, 1872, and 1876, that in the second-named year being an important one of considerable magnitude. In 1888 a great irruption occurred, and thousands of birds reached this country. Clutches of eggs were taken in Yorkshire and elsewhere; and on the Culbin Sands, in Moray, a nestling was discovered, and a second in the following year. In 1908 a small invasion reaching our islands occurred, and birds were also recorded in 1909. The status of Pallas's Sand-Grouse on our list is abso-

lutely unique, and the great interest attaching to the species warrants this brief summary. But its right to be considered a native bird is merely nominal. In both habits and appearance it is obviously an inhabitant of the desert. The three elliptically shaped eggs, stone-buff with purple-brown blotches, are laid in a hollow scratched in the sand. A nearly allied bird is found on the Tibetan uplands, and a second genus comprises several species. Together the Sand-Grouse form a small but separate family and order of their own.

Plate 40.

WOOD-PIGEON OR RING-DOVE—*Colum'ba palum'bus.*

Length, 17 in.; wing, 10 in.

[COLUM'BÆ : Colum'bidæ.]

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ORDER, COLUMBÆ (PIGEONS);
FAMILY, COLUMBIDÆ (ONLY FAMILY).

THE WOOD-PIGEON, OR RING-DOVE

(Columba palumbus).

Plate 40.

We have now to describe an Order the general characteristics of which are too well known to require enumeration. Four species of Pigeon are native to this country, and all of them are common enough to deserve a place in this work. Of these the most familiar is the Wood-Pigeon, very often called the 'Ring-Dove' on account of the conspicuous light patches on the sides of the neck. 'Cushat,' 'Cushie-Doo,' and 'Queest' are among its local names.

From early spring to late summer the familiar 'Coo-coo-roo, coo-coo-roo, coo' may be heard in nearly every wood throughout the length and breadth of the British Isles, and even in the parks and squares of London and other great cities. The species becomes rather local in the extreme north of Scotland, and is naturally scarce in the almost unwooded outer isles.

As is typical of Pigeons, the nesting season is long, extending from March till October. Two or three broods are reared during this period; but each numbers only two, or very exceptionally three. The nest is a flat platform of twigs, and is very loosely constructed. It is usually placed in a tree of some sort, but its height from the ground is very variable. Nests four or five feet above the ground, and nests forty and fifty feet above it, may often be found; but twenty feet is

a good average height. The nest may also be in bushes, hedgerows, or thick ivy on crags or ruins; and old nests of other species may even be used.

The two glossy, white, oval eggs of the first clutch are laid in March or April. Both parents take part in incubation, which lasts for two and a half weeks. The chicks are nidicolous, being blind, naked but for a few down-feathers, and helpless at first. They are fed with 'pigeon's milk,' a curdy secretion from the crops of both adults, and later with more solid food from the same source.

This brings us to consider the food of the adults themselves. This consists almost entirely of vegetable substances, although snails, and so on, are occasionally taken. The following are the most important items in the bill of fare: grain and seeds of various sorts, turnip-tops and the like, beans and peas, berries, acorns, and beech-mast. The quantity of food that one bird is capable of stowing away is enormous. Records such as that of a thousand grains of corn from the crop of a single bird are common. In summer certain moth-caterpillars that are injurious to forest trees are sometimes eaten. The balance of the evidence, however, seems to be markedly against the Wood-Pigeon, the harm it does to agriculture outweighing all other considerations.

The great decrease of our birds of prey has removed an important natural check on the undue increase of the Wood-Pigeon. Similarly, it has been found in some places that the forester's destruction of Squirrels has reacted harmfully on the agriculture of the neighbourhood, through the medium of this bird, whose eggs and young were thus rid of a serious enemy. Other checks, however, are by no means wanting. Of two we may make brief mention.

In winter the Wood-Pigeon becomes an object of sport,

Plate 41.

STOCK-DOVE—*Colum'ba œ'nas.*

Length, 13·5 in.; wing, 8·8 in.

[COLUM'BÆ: Colum'bidæ.]

and as such is not unworthy. When it first rises from its perch the wings are flapped violently, so that they even touch each other with a loud flapping noise, and the flight is erratic. Once clear of the trees, however, the Wood-Pigeon flies with a steady and straight flight of very considerable velocity.

The other factor is disease. It has been for many years recognised that Wood-Pigeons are liable to attacks of a kind of diphtheria, caused by an apparently distinct bacillus. The disease appears to run a course of about three weeks before it proves fatal. Among its effects are the growth of a false membrane over the palate, and inflammation and swelling in the region of the gullet. The former causes the true membrane to die, and the subsequent wasting away may even extend to the bones. The swelling in the throat may, in the final stages of the disease, be sufficiently serious to prevent swallowing. Starvation probably undermines the bird's powers of resistance and hastens the end, but the poison itself is apparently the usual cause of death. The disease occurs in epidemics, being prevalent in some districts in one season, in others during a second season, and perhaps almost altogether absent a third year. The records so far are all for England and Wales, and the general opinion is that the epidemics arise among the great flocks of Wood-Pigeons that arrive in October from the Continent. As many as four thousand bodies of birds that perished from the disease were destroyed on one estate in a single season. These great epidemics tend to occur in acorn or beech-mast years; but it has been very reasonably suggested that the massing of the birds owing to these supplies of food is favourable to the spread of the disease, rather than that the food has anything to do with the origin of the disease.

It is not yet clear how the disease is spread, but among probable explanations is the suggestion that healthy birds swallow food that birds in an advanced stage of the disease could not swallow, and were therefore forced to regurgitate. The possibility of the transmission of the disease to other species of birds and to other animals, including human beings, is an important but difficult and much-disputed point. An important inquiry into the whole circumstances of the Wood-Pigeon diphtheria is at present in progress, and the results are awaited with interest. A disease affecting the growing feathers and ultimately rendering the bird incapable of flight also attacks this species at times.

THE STOCK-DOVE

(Columba œnas).

Plate 41.

Although more local and altogether less abundant than the preceding species, the Stock-Dove is a fairly common bird throughout the greater part of the British Isles. In many districts, however, it is not properly distinguished by the country-folk, but is confused with one or other of its allies. It is very frequently misnamed the 'Rock-Dove,' and the confusion is increased by people who, knowing its real name, imagine it is so called because the species was the original 'stock' from which our domestic Pigeons were derived. As a matter of fact, the Rock-Dove is the ancestor of our domestic birds, and the epithet 'stock' has reference to the bird's habit of nesting in the 'stocks' of trees.

The Stock-Dove may be distinguished from the Wood-Pigeon by the absence of the characteristic white patches

Plate 42.

ROCK-PIGEON—*Colum'ba liv'ia.*

Length, 13 in.

[COLUM'BÆ : Colum'bidæ.]

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on the neck, and from the Rock-Dove by the absence of the white rump and of the black-barred wings. The female Stock-Dove is rather smaller in size and duller in colour than the cock, and the immature bird is still duller and lacks altogether the brilliant metallic lustre of the neck-plumage of the adult.

Old woodlands are the typical haunts of the Stock-Dove during the nesting season, holes in trees being the commonest sites. Other sites are on buildings or crags, or the eggs may be laid in old nests of other birds. In the north of England and in Scotland the Stock-Dove is best known as a nester in rabbit-burrows, especially among the sandhills along the coasts. The eggs are usually laid several feet down the burrow, but we have found them at the very mouth more than once. In this situation they have been figured in the accompanying plate for convenience, but it must not be regarded as normal. The two eggs are of the usual oval type, but of a rather creamy tint. In other respects the nesting habits closely resemble those of the Wood-Pigeon.

THE ROCK-PIGEON

(Columba livia).

Plate 42.

In the Rock-Pigeon, or Rock-Dove, we have the still wild descendants of the original wild ancestors of our domestic Pigeons. All the various breeds — Pouters, Tumblers, Fan-Tails, Homers, and so on—are but artificially produced varieties of this single species. With these, however, Turtle-Doves, and other species sometimes kept in *captivity*, must not be confused.

In starting a new variety the breeder takes advantage of some already inherent character. Without this he cannot get a beginning. Given this, however, he can produce, by the mating of carefully selected birds from generation to generation, a fairly distinct race in a time which seems insignificant when compared with the slow march of natural evolution. Under natural conditions, a characteristic may have to give its possessor some advantage over other individuals if it is to be perpetuated and increased. The elimination of the less-favoured birds may be a very slow process, repeated at every step; but under domestication elimination is instantaneous, and merely in accordance with the breeder's will.

The differences between such races are perhaps not so important and fundamental as they might at first sight appear. Certainly they lack permanence, and a breed may be lost as rapidly as it was built up; a few generations of indiscriminate mating destroy the effects of selection. In the case of two birds of different breeds, the chief quality in common is the underlying ancestral strain, however disguised. This has probably the best chance, and the offspring may show a 'throw-back' towards the original stock, with its more enduring characteristics. Thus it is a familiar fact that the majority of domestic Pigeons, left more or less to shift for themselves, closely resemble true wild Rock-Doves. But albinos and other marked variations occur with much greater frequency among the former than the latter.

It is sometimes difficult to distinguish between truly wild and merely 'feral' Rock-Pigeons. 'Feral' is the term for domestic animals that have reverted to the 'wild' state. The term 'wild' is strictly applicable only to birds whose ancestors have never been under domestication.

Plate 43.

TURTLE-DOVE—*Tur'tur commu'nis.*

Length, 11·25 in.; wing, 6·8 in.

[COLUM'BÆ : Colum'bidæ.]

As a truly wild bird, then, the Rock-Dove is found on parts of the coast where there are cliffs with plenty of caves and indentations. Such haunts are few in England and Wales as a whole, and the species is little known except on parts of the west coast and on the north-east. Round the coasts of Scotland and Ireland and their outlying islands, haunts are abundant and the bird is numerous. Inside a suitable cave many birds may be found nesting on the ledges. Except that it generally uses ledges or fissures of the cliffs, the Rock-Dove's nesting economy resembles that of its allies already discussed. The two eggs are oval in shape, and glossy white in colour. Domestic or feral birds not occupying special dove-cots use buildings instead of cliffs; like the wild birds, they avoid even perching on trees.

THE TURTLE-DOVE

(Turtur communis).

Plate 43.

The three native Pigeons already discussed are all congeners; but the species which we now come to is a representative of another group. No very marked differences exist that need be noted here, except that the Turtle-Dove is of more slender and graceful build. The note, used chiefly by the male, is a soft 'coo,' quite different from the loud, repeated call of the Wood-Pigeon.

The Turtle-Dove is merely a summer visitor to the British Isles, arriving late in April or early in May, and usually leaving in September, but sometimes lingering later in mild seasons. But it is only to part of our area that the species is native, being common in the southern, midland, and eastern districts of England,

and becoming quite rare in the north and west. Into these regions, however, it is now spreading. To Scotland it is an uncommon migratory visitor, notably to some of the outlying isles, and it may have nested in the south-west. There are a few nesting records for Ireland, where the species is on the increase as a spring migrant.

In nesting habits the Turtle-Dove differs but slightly from the Pigeons of the typical group. The species is arboreal, and the nest in a tree or bush is a slight platform of twigs; but the bird has been known to occupy the old nest of a Rook. The eggs are two in number, as in the case of the other Pigeons, but differ in being slightly pointed at one end, and in being of a creamy rather than a dead white. Both parents take part in incubation, which lasts about a fortnight. The young are of the usual type, and two broods may be reared in a season.

The Collared Turtle-Dove is a well-known bird often kept in confinement in this country, but a native of some of the countries of the 'Near East.'

In poetry the name of the bird under discussion is very frequently abbreviated to the rather ambiguous form of 'Turtle.'

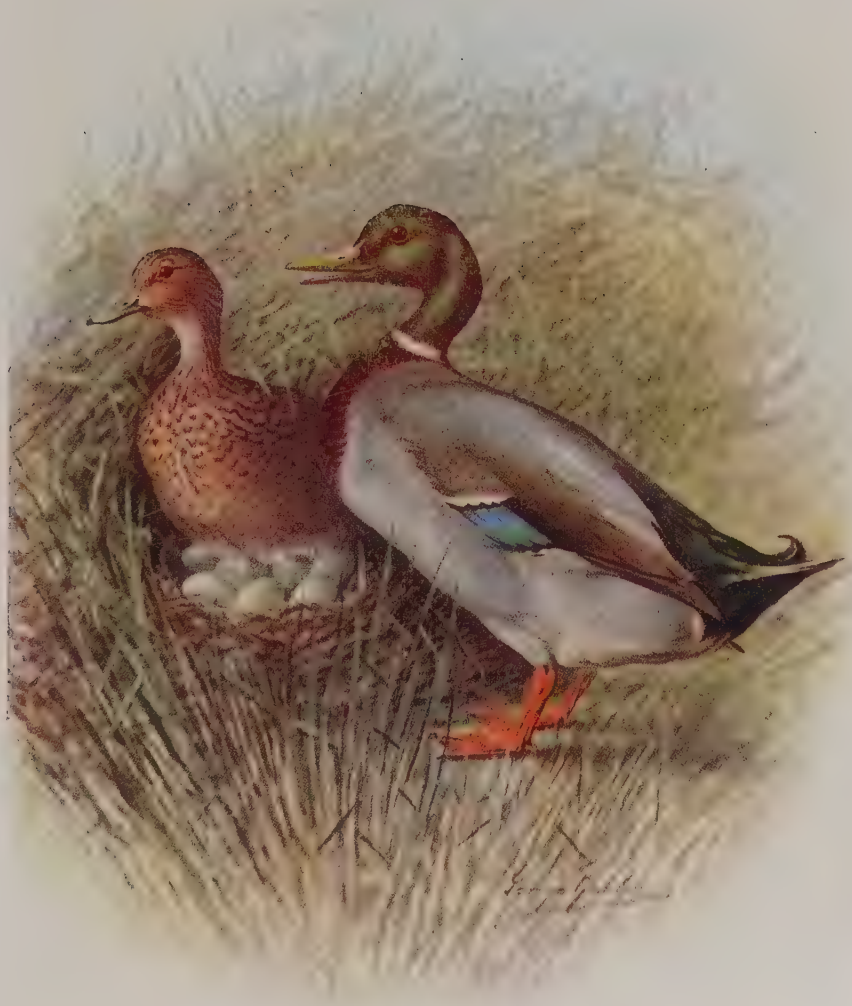

Plate 44.

MALLARD OR WILD-DUCK—*An'as bos'cas.*

Length, 23 in.; wing, 11 in.

[AN'SERES : Anat'idæ.]

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ORDER, ANSERES (DUCKS, GEESE, AND SWANS);

FAMILY, ANATIDÆ (ONLY FAMILY).

THE MALLARD, OR WILD-DUCK

(Anas boscas).

Plate 44.

The common Wild-Duck stands to the Domestic Duck in the same relation as the Rock-Dove does to the Domestic Pigeons of various breeds, a matter which we have already discussed. Various breeds, such as the well-known white Aylesburys, can be kept distinct; but under ordinary farmyard circumstances, where no special care is taken, the plumage of the birds is often very similar to that of the wild birds. The farmyard bird, however, is one that excites more ridicule than admiration; its clumsy, waddling gait is proverbial, and it is, as a rule, incapable of flight. From the mode of its life it has become degenerate from a natural point of view, but at the same time more suited for the purpose for which it is kept by man. Only on the water has it the slightest pretensions to good looks.

The Wild-Duck is an entirely different bird. The wings are longer in proportion, the body is lighter, and the flight of the bird is extremely strong and rapid, making the sport of duck-shooting a severe trial of skill. The flight is of the 'direct' order; point to point flight or wide circlings are typical. The neck is stretched straight in front, and the movement of the wings is regular and very rapid. The birds usually

alight obliquely on the water with considerable force. At both swimming and diving the Wild-Duck is no mean performer, although it belongs to the group of 'non-diving' Ducks, so called to distinguish them from the 'diving' Ducks, which habitually obtain their food from the bottom in comparatively deep water. The present species does not use its powers for this purpose as a rule, but feeds on land or in shallow water. In the latter case the method is that employed by the farm-yard bird on the duck-pond. The bird 'stands on its head' in the water, the fore-part of the body submerged and the tail pointing skywards, while the paddling of the feet maintains equilibrium. Even in the wild state the species is almost omnivorous. Like most Ducks, it is almost entirely a night feeder.

On land the Wild-Duck does not appear to great advantage, although it is less clumsy than the domestic bird; the legs are placed far back for advantage in the water, the resulting awkwardness in walking being of minor importance. Half-bred and hand-reared Ducks are always built on clumsier and coarser lines than real wild birds, although they may be infinitely superior in this respect to thoroughly domesticated Ducks.

Late in March or early in April the eggs are laid. They may be up to a dozen in number, and are of a uniform cold grayish-green hue. The nest in which they are laid is typically a slight structure of grass placed on the ground among heather or coarse herbage at some little distance from the water; but grain-fields, hedge-rows, stacks of faggots, forks or hollows of trees, and even the deserted nests of other birds are more or less frequently utilised. In any case, down from the mother-bird's breast is added as a lining, and also to be at hand for a covering in her absence. This is a habit character-

istic of the Order. In many cases, however, the down is not added till after incubation has begun. In the case of the Mallard the down-feathers are rather large and brownish, with paler centres. The ducklings are covered thickly with down of a dark-brown colour above, yellowish white below. From the first they are active and perfectly at home in the water. That they take to that element instinctively seems true, to judge from the proverbial behaviour of farmyard ducklings hatched under a hen. Over two months elapse before the wild ducklings attain the power of flight, which they do on reaching full growth and completing the assumption of a plumage similar to that of the adult duck.

The most important feature in the nesting economy of the Mallard is the fact that the drake takes no part in the duties of incubation and rearing the young. In fact, soon after the eggs are laid he disappears from the scene altogether, and remains in close retirement some distance away till late in summer. This he is forced to do by the fact that his annual moult occurs at this inopportune time. Towards the end of May his plumage loses its brightness and becomes somewhat similar to the duck's; he goes into 'eclipse,' as it has been aptly termed. The dull coloration and the adoption of retiring habits are of great service, for the time of moulting is always one of low vitality, and in this case the quills are dropped almost simultaneously, thus rendering the bird for a season incapable of flight. By October he is out and about, with his plumage again of brilliant hue. This summer moulting is a rather extraordinary event, and means that the Mallard drake wears his bright breeding-plumage for two-thirds of the year in all, but only for the earlier part of the nesting season. The duck

does not moult till autumn, and is in summer faithful to her duties.

The great disparity in plumage between duck and drake, and the difference between their seasons of moult, are characteristics common to all the Ducks we have to treat of, from the Mallard to the Goosander. All the drakes, therefore, show a general resemblance in the apparently neglectful habits necessitated by their 'eclipse.' The difference in the plumage of the sexes renders the portrayal of both in the accompanying plates a matter of necessity, but it must be understood that it is only as a practical convenience that both birds are shown together beside their nest. The drake, too, is shown in full plumage, with no signs of coming 'eclipse.' Such a scene is not impossible during the earlier days of incubation, but cannot be regarded as common.

Besides being shot for both sport and profit, the Mallard and other Ducks are caught in special duck-decoys, the working of which has often been described. Decoys are still greatly in vogue in the Netherlands, whence the system was long ago introduced into the east of England. In the latter, however, it is now ceasing to be of much importance.

THE GADWALL

(Anas strepera).

The Gadwall was introduced into Norfolk in the middle of last century, and under the favourable conditions and careful preservation afforded them there the birds have thriven and multiplied. Moreover, there is ground for believing that they have been the means of inducing perfectly wild birds to remain to nest there also. Apart

from this, the species is an uncommon wanderer to various parts of the British Isles. The eggs, eight to thirteen in number, are buffish white in colour, 'with no tinge of green.' They are laid in a nest of dry grass, lined with down, situated at some little distance from the water. 'The down is very dark, with small light centres, and distinct gray points.'

THE SHOVELLER

(*Spatula clypeata*).

The Shoveller is a quite unmistakable bird both from the showy plumage of the drake and the broad shovel or spoon-like beak to which it owes not only its English and its scientific name, but also various local titles (including 'Spoonbill,' which rightly belongs to a totally different bird). It is chiefly a winter visitor to the British Isles, but during the past thirty years it has, under protection, become not uncommon as a nesting species. Its British-breeding area includes many of the eastern, midland, and northern regions of England, some parts in the south and east of Ireland, and many districts throughout Scotland, but especially in the central lowlands. Outside this area it nests only exceptionally, and within it rather locally. In winter it is more widespread. The nest is of grass, lined with down from the bird, and placed among coarse herbage or sedges. 'The eggs are distinctly greenish in colour, which at once differentiates them from those of the Wigeon, though the down closely resembles that of the latter.'

THE TEAL

(Nettion crecca).

Plate 45.

Another common Duck, much smaller than the Mallard, is the Teal. The drake is an extremely handsome little fellow. His mate is very soberly coloured, but has the characteristic green 'speculum' on the wing. The Teals form a genus of world-wide distribution, and some of the other species are of interest to us because they are freely imported, and, like our own bird, are common on ornamental waters. For this purpose they are general favourites, not only on account of their appearance and their tameness, but because of the little trouble they give as regards feeding, and the small space of water with which they are content. A pair of pinioned Teals will readily nest on a pond of very small size, if they are provided with a suitable piece of cover free from disturbance.

Our indigenous Teal is widely distributed throughout these islands. It has nested in the Hebrides, but is rare there at any season. Otherwise it is a common and widespread nesting bird throughout Scotland, including the northern isles. In Ireland it is abundant, nesting in every county. In England and Wales it is more sparingly distributed as a breeding species, especially towards the south. From September onwards large numbers arrive from the Continent, and some or all of them remain with us till the following spring. About a score of Teals, marked on the autumn passage in the duck-decoys of south-western Denmark, have been obtained in the British Isles, for the most part in the south of

Plate 45.

TEAL — *Net'tion crec'ca.*

Length, 14·5 in.; wing, 7·25 in.

[AN'SERES: Anat'idæ.]

England, and in Ireland, especially towards the south-west. One was got as far north as Inverness, however. One that was found in Ireland exceptionally early in the following autumn is under suspicion of having passed the summer there for some reason. Others marked at the same place have been got in Holland, and many in the west of France. We have yet to learn what routes the birds follow. Do the British-wintering Teal come *viâ* Holland to the south-east of England? Or do these birds cross the North Sea direct, while only the French ones pass through the Netherlands? Or do the French birds pass through the British Isles? Single records of Danish-marked Teal from Spain and the north of Italy open up fresh possibilities. A solitary April record from eastern Sweden is so far the only indication of the summer-quarters of these migrants. In winter, in this country and abroad, Teals are shot for sport to a great extent. They are wary and rise quickly, and the flight is very rapid. Their food consists to a great extent of vegetable matter, and the flesh is therefore very palatable. Large numbers of Teals are also taken in decoys or otherwise procured for the market. The extent of the slaughter may be partly realised when we say that the extraordinarily large proportion of nearly twenty-five per cent. of the Danish-marked birds were killed or captured, for the most part within the six months following marking. This figure, of course, does not allow for any that perished unrecorded. With one or two exceptions, all records are for the winter months—the months of shooting. And yet the Teal as a species is in a flourishing enough state, and its numbers are fairly well maintained. Protection during the nesting season amply compensates for the winter shooting as regards home-bred birds, and for those nesting in more northern lands, where no protection against human beings is necessary,

the struggle is probably none too hard, and the mortality therefore low enough to stand a severe winter drain. Sport has seldom proved inimical to a species as a whole, for it has its compensations. But we can well understand that extermination would soon overtake a bird persecuted in its summer area and pursued for sport in its winter abode!

In nesting habits the Teal does not differ widely from the Mallard. The eggs, from eight to ten or more in number, are of faint cream-buff or greenish white. They are of course much smaller in size than the Mallard's. The down lining the nest, which is built by the water-side, is gray, darker in the centres. The duckling in its down plumage is dark brown on the upper-parts, except for some buff-coloured patches and dark streaks about the head. We have already remarked that the Teal breeds freely in captivity. It also interbreeds with several other species. It may be here remarked that a large number of different duck hybrids are on record, not a few being known to occur even in the wild state.

THE GARGANEY

(Querquedula circia).

The Garganey is a small and graceful Duck of rather dull plumage. It is allied to the Teal, but may be readily distinguished by the broad pale streak above the eye. It nests locally in the east of England, especially on the Norfolk 'broads,' where it is well protected. To the greater part of the British Isles it is only an uncommon wanderer. The eight or more cream-coloured eggs are nearly as small as the Teal's, but are never greenish in colour. The down lining the nest, which is

built among coarse herbage, usually in swampy ground, is lighter than that of the Teal, and has white tips.

THE PINTAIL

(Dafila acuta).

The Pintail is built on slender lines for a Duck. The names 'Pintail' and 'Sea Pheasant' refer to the elongated tail-feathers of the adult drake. The species is chiefly a winter visitor to our area, but has for some years been known to nest in small numbers on the strictly preserved waters of Loch Leven, in Scotland. There are a few other Scottish records, and doubtful ones from Ireland. The seven to ten eggs are usually of a greenish colour, and are laid earlier than are those of most Ducks. The down-lined nest is placed among coarse herbage not far from water.

THE WIGEON

(Mareca penelope).

The Wigeon is the last of our native surface-feeding Ducks. For the most part, it is an abundant winter visitor to our inland and tidal waters, from October to March or April. The drake is a handsome and easily recognisable bird, with conspicuous buffish-white forehead and crown, the rest of the head and neck being chestnut; the back is of a finely vermiculated gray, and the white shoulder is followed by a black bar and a green wing-patch. The species is a well-known 'sporting' bird. As a British-breeding bird, the Wigeon is now on the increase. It has been long established on the northern Scottish mainland, but has lately begun to nest in some

of the more southern districts. There are also occasional records from England, and doubtful ones from Ireland. The seven to ten cream-tinted eggs are laid in a nest placed among rushes or heather, and lined with dark-coloured down from the bird itself. That our native-breeding birds are to some extent migratory is shown by the fact that a Wigeon duckling 'ringed' in Sutherlandshire was taken early in the following September in a duck-decoy in north-eastern Holland.

THE TUFTED-DUCK

(Fuligula cristata).

Plate 46.

We now come to treat of a genus of Ducks which is characterised, among other features, by the general colour-scheme of the plumage. All the three species that we have to deal with have the throat and breast conspicuously dark, and the under-parts gray or dull white. The sharp division between the coloration of breast and under-parts is specially noticeable when the birds are flying over the observer.

Of the three species, all of them familiar in winter, the Tufted-Duck is the only one which is sufficiently common as a British-breeding bird to require full treatment. It derives its name from the elongated feathers drooping down the back of the neck; but, as they are more often than not plastered close to the rest of the plumage, the trait is of little importance for identification. The drake in full plumage, however, is always an unmistakable bird apart from this. On the water he is specially easy to recognise, as he swims high enough to display an ample and conspicuous patch of gleaming white flank, which makes a

Plate 46.

TUFTED-DUCK—*Fulig'ula cristā'ta.*

Length, 17·25 in.; wing, 8 in.

[AN'SERES: Anat'idæ.]

vivid contrast with the dark upper plumage. The duck has the crest less well developed, and has the upper plumage dull sooty-brown instead of glossy black, and the under-parts dark gray with still darker bars, instead of uniform gleaming white. The immature birds resemble her, but have a sprinkling of white on their foreheads during the first winter. Twenty years ago the Tufted-Duck was chiefly a winter visitor to the British Isles, being at that season common on most of our estuaries and larger inland waters, but less so on the open coast. It remained to breed in some numbers on a few lakes and smaller waters, notably some Nottinghamshire ponds. Since that time, however, it has increased to an astonishing extent as a British-breeding species, and it may now be said of many areas that a few pairs nest on every suitable stretch of water.

The nest is always near fresh-water, and is usually where plenty of cover is to be had. It may be placed under a bush, but is more often in the heart of a big clump of rank grass or other herbage. More exposed situations are uncommon. The eggs vary in number from eight to thirteen. They vary from stone-colour to greenish brown, and are laid late in May or early in June, as a rule. The down is composed of rather small filaments, chocolate brown in colour, with very indistinct paler centres. The chicks in down are brown above and buff-coloured below. There are indistinct eye-streaks, and paler patches, one on each side, on the lower back.

The food of this species consists of both animal and vegetable matter, which is obtained from the bottom by diving. Twenty seconds is the usual period of immersion at ordinary depths. Considerable depths can, however, be reached if necessary, as is shown by the fact that Tufted-Ducks and Pochards are caught in nets sunk in Loch Neagh

to a depth of fifteen fathoms—ninety feet. This is the usual method of feeding for members of this group as well as for the marine Ducks like the Eider-Duck, the Long-tailed Duck, and the Scoter. These are therefore spoken of generally as 'diving ducks.' They are characterised by having a broad hind-toe, which gives additional propelling surface. The other Ducks of which we have so far treated belong to the non-diving group. This does not mean that they cannot dive on occasion, but only that they do not, as a rule, obtain their food by diving. The Mallard's familiar method of feeding in very shallow water has already been alluded to. Other 'non-diving' ducks, like the Shoveller, feed largely in the mud at the side of the water. At other times Tufted-Ducks and other diving ducks are followed for the particles of food they loosen from the bottom and allow to float to the surface.

The distinction between diving and non-diving ducks is not a sharp one, nor one of real systematic importance. The species we discuss here all fall into one group or the other, except the Merganser and Goosander and the Sheldrake. The first two are diving and the last non-diving; but as regards feeding habits they must be classed in two groups by themselves. Their habits will be discussed later on.

THE SCAUP

(Fuligula marila).

The Scaup resembles the Tufted-Duck, but is larger and without the crest. The back of the adult drake is beautifully grained with silvery gray. It is marine in its habits, and is chiefly known in the British Isles as a winter visitor on the coast. It has nested in the north

Plate 47.

EIDER-DUCK—*Somate'ria mollis'sima.*

Length, 24 in.; wing, 11 in.

[AN'SERES: Anat'idæ.]

of Scotland. The eggs are like those of the Tufted-Duck, but are larger. The down is lighter, with conspicuous pale centres.

THE POCHARD

(Fuligula ferina).

The Pochard is one of the best-known members of the group, but it is chiefly a winter visitor. It nests, however, in many English counties, notably Norfolk, as well as in the Scottish Borders, and perhaps in parts of Ireland. The adult drake has a reddish-brown head and neck, and a blackish breast sharply divided off from the rest of the plumage, almost all of which, except the under-tail coverts, is light in colour. The eye changes from the orange-yellow of immaturity to deep ruby-red. The duck is a very much duller bird altogether. The seven to ten eggs are of a greenish-drab colour, and are usually rather larger than those of the Scaup. The nest is placed among sedges, rushes, &c., beside lakes; the down is large and very soft.

THE EIDER-DUCK

(Somateria mollissima).

Plate 47.

The name 'Eider,' familiar to all from the famous down, is associated in the minds of most English readers with far northern lands—Scandinavia, Iceland, and Greenland, the chief sources from which eider-down enters the world's markets. Nor is this strange, since the whole south and west of England are quite outside the Eider-Duck's nesting area, and it is a bird which does not wander far south of

its breeding haunts, except in those seas which become ice-bound in winter. In southern Britain it is therefore a rather uncommon winter visitor. On the Northumbrian coast and the Farne Islands, however, it is a familiar breeding species. Northward along the Scottish coast it is found in suitable localities up to the Shetland Islands. On the west coast, from Argyll to the Outer Hebrides, it is increasing in numbers; but to Ireland, despite the nearness of the northern part of that country to some of its haunts, its visits are strangely infrequent.

The drake's plumage is a brilliant contrast in black and white, the under-parts, the wing-tips, the tail, and the crown being mostly black. The white of the breast is suffused with buff, and that of parts of the head with pale green—characteristics not noticeable at any distance. This plumage is worn for the greater part of the year; but soon after the eggs are laid the wearer's annual moult takes place, and he deserts his mate and flies out to sea, where he is joined by other drakes in the same case as himself. For a time he remains in 'eclipse,' and his plumage is mostly dark all over, with lighter patches on the upper-parts. The ordinary plumage of the young drake is somewhat similar to this 'eclipse' plumage. It is probable that the Eider-Duck does not breed until its third year, and flocks of immature birds may be observed off our coasts in summer at some distance from any nesting haunt. The duck is of a dull brown colour all over. This species is one of the largest of the Ducks, and appears rather clumsy on land. It is, however, strong on the wing, and of course exceedingly expert in the water. It obtains its food—molluscs, crustaceans, &c.—by diving.

In Scotland laying may begin in the first week of May, but it is not until the end of the month that incubation becomes general. The eggs are usually light green, but there is also a rather brownish type; they are usually said

to be from five to eight in number, but sometimes three or four form the full clutch, and we have rarely found five exceeded (Aberdeenshire). On the other hand, we have seen an Eider-Duck followed by a brood of ten. Whether the number of eggs or nestlings actually found together may always be taken as the proper clutch or brood is doubtful, if we are to accept the statement of one writer that the Eider-Duck habitually steals both eggs and young from others of her kind. A case has been related in which an Eider-Duck had her own eggs sucked by a Lesser Black-backed Gull, and thereupon appropriated the Gull's nest and eggs in place of her own. We have known of an Eider-Duck's egg being found in a Black-headed Gull's nest along with two eggs of the rightful owner—one of them broken. A satisfactory explanation of this case was not forthcoming.

The nest itself, when laying begins, is merely a hollow in the ground with or without a lining of bent-grass, sea-weed, or other material; but during incubation the eider-down is added, and most of it placed round the outer edge of the nest ready to be pulled over the top of the eggs when the mother leaves to find food for herself. Bent-grass is sometimes used to cover the eggs as well as to line the nest, but probably only in the earlier stages of incubation. When disturbed, the duck has not time to cover her eggs; but as she rises she squirts—sometimes with a none too accurate aim—an evil-smelling, oily liquid over them. In the later days of incubation especially she is an exceedingly close sitter, and will often allow herself to be touched without showing any signs of fear. In the northern countries, where she is carefully protected for the sake of her down, she is extraordinarily tame, and habitually nests *inside* inhabited houses—in the oven—willingly surrendered—for instance. In this country low islets are

the favourite places; but where these are not available she nests on low moors at the side of estuaries, or even among the sand-dunes along the coast.

Eider-down is mouse-coloured, but each little feather has an indistinct paler centre. Lightness, softness, and elasticity are its chief qualities. A dozen nests supply about a pound and a half of down—worth about a guinea—which is enough to stuff a bed-quilt.

Only one brood is reared; but when robbed, the Eider-Duck lays again. In Scandinavia the first two clutches of eggs are taken for food, and the accompanying down is carefully collected; but the duck is allowed to rear her third brood in peace, and any down there may be is not collected till afterwards. The story that she plucks her mate's breast for these later nests must be regarded as a myth, probably having its origin in the plucked appearance a moulting drake might present about that time.

Incubation seems to begin before all the eggs are laid, and it lasts for over a month. The young ducklings are dark brown above, with the under-parts and a streak over the eye of a paler hue. When only a few hours old they are led to the water, and from that time till they breed, three years later, they scarcely ever come to land.

THE SCOTER

(Œdemia nigra).

The Common or Black Scoter is a marine diving duck of very dark plumage. It breeds sparingly on some of the low-lying lochs round Caithness and on the high-lying lochs of Inverness-shire down the line of the Caledonian Canal. It has bred in Ireland. In winter it is abundant off our coasts, especially on the east of

Plate 48.

RED-BREASTED MERGANSER—*Mer'gus serra'tor*

Length, 24 in. ; wing, 9·5 in.

[AN'SERES : Anat'idæ.]

Great Britain. The six to nine yellowish-white eggs are laid in a nest of grass and moss, lined with almost black down, and placed near water.

The large flocks of Common Scoters seen in winter usually contain a proportion of Velvet Scoters. This species, readily identified by its conspicuous white wing-bars, has been suspected of having nested in the Highlands.

[The Long-tailed Duck, a small marine diving duck of pied plumage, may have bred in Shetland. Large flocks may be seen off some of our coasts in winter, and individuals may then be found in estuaries, or even in inland waters. The drake is a handsome bird, whose central tail-feathers are greatly elongated.]

THE RED-BREASTED MERGANSER

(Mergus serrator).

Plate 48.

The Merganser is the commonest British representative of a small group of Ducks characterised by bills adapted for a diet consisting almost entirely of fish caught by under-water pursuit. These bills are quite different from the usual duck type, being rather long and slightly hooked, with the edges of the mandibles serrated.

The Merganser is found in estuaries and bays round most of our coast-line in winter; but its breeding area is more restricted. It includes part of the Irish seaboard and most of the larger loughs, as well as many of the Scottish inland waters and the north-west coast and the isles. In Orkney and the Hebrides it is especially abundant.

It is also typical of the group that the nest is in

a concealed position, such as the hollow under the roots of an old tree, the heart of a briar thicket, or even a Sheldrake's burrow. Towards the end of May the greenish-gray eggs are laid, and a quantity of pale drab down is added to the scanty nest. The clutch may be anything up to ten in number, but rarely more.

As in the case of the more typical Ducks, the drake takes no share in the duties of incubation and the rearing of the young; but he may often be seen in the vicinity of the nesting haunt.

Like other ducklings, the young Mergansers soon take to the water. There they are zealously tended by their parents for several weeks, being kept largely to the shallows at first for fear of the pike, which are always hungry and on the lookout for such prey. By August, however, the young Mergansers are well able to fend for themselves, and we may then see them flying up and down the river, or swimming and diving off shore. The Merganser and its congeners are of necessity more dexterous in the water than those other diving ducks which are merely bottom-feeders, and are not notable except on account of the depth to which they can descend and the time they can remain under water. On land the Merganser sits nearly upright. The name 'Shelduck' is sometimes popularly misapplied to this species.

THE GOOSANDER

(Mergus merganser).

The Goosander is a larger and handsomer bird than the Merganser, and much less widely distributed in the British Isles. As a breeding species within our area it is confined to the Scottish mainland, from Deeside, Strathspey,

Plate 49. SHELD-DUCK OR SHELDRAKE.—*Tador'na cornu'ta.*

Length, 25 in. : wing, 13 in.

[AN'SERES : Anat'idæ.]

and the central Highlands to Sutherlandshire. The haunts are mostly fresh water at this season, and even in winter it shows partiality for rivers and lakes, although also found in tidal waters. In winter it is more widely distributed, but is infrequent in Ireland and Wales and the south of England, and it is always rare in the outlying Scottish isles. On the eastern side of Great Britain it is commoner than its smaller ally. This it resembles in general and nesting habits. The eggs, from eight to thirteen in number, are of a creamy or buffish tint, and the down is a characteristic grayish white.

THE SHELD-DUCK, OR SHELDRAKE

(Tadorna cornuta).

Plate 49.

The Sheld-Ducks are again a small group by themselves, forming, in fact, a link between the true Ducks and the Geese. They are amongst the commonest birds kept on ornamental waters, and the few exotic species are freely imported into this country, and are sometimes obtained as 'escapes.' One of them, the Ruddy Sheld-Duck, is also a rare natural visitor to the British Isles. The Common Sheld-Duck, or Sheldrake, however, is an indigenous species, and is comparatively common in suitable localities, especially on the east of Scotland.

These localities are the dune-lands and other expanses of waste ground that are to be found round the low-lying portions of our coast-line. There, if not persistently robbed of its eggs, it may be found in something of the nature of colonies — many pairs nesting within a small area, and often massing into flocks when feeding or resting in the open. At low tide they may be seen

feeding on the exposed mud-flats, the birds sometimes rising to chase each other, or uttering hoarse, goose-like cries. When the tide is in, we may see them grazing like Geese in the meadows or on the moor, or find them nesting all together, though each pair keeps itself perceptibly apart. Inland haunts are occasionally resorted to.

In May the nesting operations begin. A suitable rabbit-burrow is chosen, or a similar tunnel is excavated, the situation usually being the side of a sand-dune or of a bent-grown hillock. The tunnel is generally something between five and fifteen feet in length, and when long is often very markedly doubled back on itself. Exceptionally, holes in rocks or bridges or other concealed situations are chosen. At the end of the tunnel a slight nest of grass or similar material is made, and to this a large mass of down of a pearl-gray colour is soon added. The eggs are creamy white, and may number anything up to rather more than a dozen. Incubation lasts nearly a month before the eggs hatch and the chicks can be led to the water. The duck has been said to carry chicks on her back at times; but as a rule no such help is needed, even in a walk of a mile or two. In some districts a brood *en route* is often surprised in the village street in the early morning, and one has been recorded making its way along a railway line.

Both in appearance and habits this species betrays its affinities with the Geese. Some of these resemblances have received passing mention already, but two others may be emphasised. The Sheldrake resembles most Geese, and differs from most species of true Ducks, in having no very marked difference between the adult plumages of the sexes. It is true that the difference is sufficient to distinguish the birds in the field; but it is trifling

compared with the extremely great differences that we have noticed in the case of various other Ducks. The colours are duller in the duck, and the basal knob is absent from her bill. She is also perceptibly smaller, even when seen from some distance. The chestnut pectoral band is the most characteristic portion of the plumage, but the immature bird lacks this. On the wing at some distance the Sheldrake may appear to be white practically all over. The word 'sheld,' by the way, means parti-coloured. 'Burrow-Duck' and 'Stock-Annet' are popular names of the species.

Another particular in which this species differs from the Ducks and resembles the Geese is that the drake does not go into eclipse, but remains loyally by his mate. Although he does not take a very active part in the nesting duties, he appears to have rather a curious share. His quaint habits have been well described by the well-known naturalist Mr W. H. Hudson, who has drawn attention to some points that appear to have been overlooked by other observers. A number of pairs may be resting together in the open at the laying season, when from time to time a drake in some way decides that it is time an egg was laid. This, at least, is Mr Hudson's interpretation of the facts. The drake in question stands in front of his mate and goes through a curious performance, rocking and swaying his head from side to side. After a while she rises and briefly answers in similar dumb show, and then follows her lord towards the burrow. From time to time she stops on the way, and has to be exhorted with further rockings and swayings. At the mouth of the burrow she makes a last and most obstinate stand. But his patience and his fund of silent eloquence are bound to be successful, and 'in the end he prevails, and bowing her pretty head she creeps quietly

down and disappears, while he remains on guard at the door—for a little while.'

THE GRAY LAG GOOSE

(Anser cinereus).

Large flocks of Gray Geese are common in many parts of the British Isles in winter, and may often be seen in the course of their migration. The majority belong to one or other of two very similar species, the Bean Goose and the Pink-footed Goose. The White-fronted and Gray Lag Goose are also represented. The last named is the only one that remains to breed, and that to a much smaller extent than formerly. It is still found in the north of Scotland, chiefly in the Outer Hebrides. The nest is made of heather and the like, and down is added after the eggs are laid. The eggs are yellowish white in colour, and half-a-dozen or more in number.

[Several species of Geese that have been introduced are known to occur, or even to breed as 'escapes.' In this connection the Canada Goose may be particularly mentioned. It belongs to the group of 'Black Geese,' and is a close ally of the Barnacle Goose, which, with its cousin the Brent Goose, is fairly common on parts of our coast-line in winter. The Barnacle Goose derives its name from the ancient superstition that it was hatched from a barnacle.]

THE WHOOPER SWAN

(Cygnus musicus).

Most of the genuine Wild Swans seen in the British Isles in winter belong to this species, which claims our attention because it used to nest in the Orkneys till about a hundred

years ago. Injured birds occasionally remain there during the summer at the present time. The nest is a large heap of herbage, usually on an islet in a lake. The eggs are up to seven in number, and yellowish white or pale brownish yellow in colour.

THE MUTE SWAN

(Cygnus olor).

Most of the Swans we see are feral or escaped examples of this introduced species, best recognised by the conspicuous black tubercle at the base of the bill. The Mute Swan is said to have been introduced as long ago as the reign of Richard Cœur-de-Lion, and it is now widely distributed, and is practically wild in some parts. We may therefore accord it passing mention as a 'naturalised citizen,' like the Pheasant and the Red-legged Partridge. It is probably also an occasional winter visitor from Scandinavia. Its nesting habits are like those of the Whooper Swan, but the eggs are greenish white. The gray plumage of the goslings is well known.

ORDER, HERODIONES (HERONS, &c.);

FAMILY, ARDEIDÆ (HERONS).

THE HERON

(Ardea cinerea).

Plate 50.

The Heron has been aptly termed a 'still-hunter,' for it is indeed predaceous, subsisting on eels and other fish, frogs, and the like; but in its hunting there is no swift pursuit, and no final capture of an exhausted victim, nor any remorseless quartering of the water. The glamour and the horror of the chase alike are absent. Still, motionless, standing in the shallow waters at the margin of some peaceful lake, the Heron keeps hours-long vigil, with the ripples lapping round its long, slender legs. From a distance we do not see the staring, watchful eyes, and the bird might almost be asleep or frozen to a statue. And so much does it make itself a part of the landscape that it is only by chance, or by seeing it take up its position, that we observe it at all. Others more immediately concerned are also deceived, and at length a victim chances to come within the danger-zone. The picture is suddenly disturbed by one quick movement, one sudden swoop of that spear-like beak poised on that long and graceful neck, and—the chase is over as soon as it has begun.

Such a scene is typical; but the Heron does not always stand *in* the water, nor does it invariably resort to fresh-water, nor seek solitude for its hunting. We have counted nine together one morning, standing on half-submerged boulders, waiting and watching, all within the limits of one

Plate 50.

HERON—*Ar'dea cine'rea.*

Length, 36 in. ; wing, 17·25 in.

[HERODIO'NES : Arde'idæ.]

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small bay of a west Highland sea-loch. We may also see this bird at other occupations than hunting; sometimes wading about the shallows, or occasionally swimming a deeper portion to save taking wing. Or we may see it in flight, and then we fully realise what a big bird it is. The neck is gracefully curved, the legs are trailed behind at a downward angle, and the large, rounded wings, which have a span of close on six feet, beat the air slowly. The flight, indeed, seems the acme of leisureliness; but there is great power in those large wings in proportion to the weight to be borne—for the actual body of the Heron is small, and the whole bird scales only three or four pounds. Moreover, the motion of large objects often appears deceptively slow, and when we come to make a more accurate estimate of its speed we find that it gets along at a very creditable pace.

But our special purpose here is to visit the Heron in its nesting haunts. These, contrary to what we might reasonably expect, are usually woodlands, and the nests are ordinarily placed in trees, where the birds, till we have got accustomed to the sight, look inappropriate enough. A hundred or two heronries still remain in the British Isles out of the much larger number that formerly existed, and these are mostly mere shadows of the prosperous colonies of the olden days when, not a century and a half ago, we are told, fourscore nests were to be seen in a single tree. Here and there also a single pair of birds may be found.

The majority of British heronries are in England and Wales, but the distribution of the Heron is nevertheless very wide, for it is very adaptable to circumstances as regards nesting-sites. The tops of lofty and almost unclimbable trees are chosen when these are available; but if not, quite low trees and even bushes are utilised. In rare cases the nest is placed in a reed-bed or on the bare ground, while

sometimes a ledge on some ivy-clad crag, or on an old ruin, forms the site. Irish heronries are naturally often in the less usual situations.

The nest is usually a large saucer-like platform of boughs, and so on, lined with twigs or herbage. It is often added to year after year, and may in the end measure many feet in diameter. Naturally, however, the nest varies considerably in type with the nature of its situation and the available materials.

The Heron is an early nester, and may usually be found about the heronry before January is out. In fact, the eggs are frequently laid in the first half of February. Four is the most frequent number, but there may be three or five. They are of a delicate, unspotted, greenish blue. Rather less than four weeks' incubation is required before the young are hatched. These are nidicolous, being at first blind, featherless, and utterly helpless. In May they leave the nest, and their parents very frequently rear a second brood the same summer.

The Heron, although itself a predaceous species, is liable to much persecution by other birds. This occurs chiefly when it is on the wing, when its slowness in manœuvring makes it almost defenceless. Thus it is often mobbed by Terns or other birds over whose colonies it unwarily passes —this perhaps from knowledge of its fondness for young birds; and when it appears in the open it is persistently chivied by the Rooks, side by side with which it often nests! A pair of raiding ravens are said to be able to put a whole colony to flight. Of even the smallest Birds-of-Prey, speaking now in the strict sense, the Heron is always in great dread, and it attempts to rise in circles above its aggressor if it be too far from a wood to make a dash for shelter. This helped to make it a favourite quarry of the old falconers, as indeed it still remains of

the few modern devotees of the ancient sport. Its large size was also an advantage.

A subject which can be very appropriately mentioned in connection with this species is that of 'powder-down.' Pervading the plumage of the Heron is a pale-blue, waxy powder which has been well compared to the bloom of peaches. This powder is easily recognised in the case of captive birds as a slight scum on the surface of their bath. The powder is traceable to several patches of extremely fragile, long down-feathers, which readily crumble and apparently form the powder in this manner. In the Heron these patches are in three pairs, the longest pair being concealed by the breast feathers, while the two smaller pairs are on the thighs and the groins respectively. Similar patches of powder-down, as it is called, are well marked in the case of the Pigeons, and, among exotic birds, the Parrots may be mentioned as also possessing them.

Interesting field observations have established the fact that the Heron, on the apparently rare occasions when it preens itself, continually rubs its beak in one or other of the powder-down patches, and then brings it out covered with the bluish powder, which becomes transferred to the feathers next preened. So far for fact. As regards the use which the powder serves, many theories, reasonable and fantastic, have been put forward; but the question still lacks a convincing answer.

To the Heron is very often popularly applied the name 'Crane,' in confusion with an unrelated bird of somewhat similar general appearance, which, as we have seen, is no longer a native of these islands.

THE BITTERN

(Botaurus stellaris).

The Bitterns are short-legged allies of the Heron, of skulking habits, and frequenting fens and marshes, such as abounded in the east of England not so long ago, and still occupy much of Holland. The suitable haunts within the British Isles have now, however, become few and circumscribed; but there is little doubt that this interesting and inoffensive bird would still nest in East Anglia in limited numbers were it freed from the persecution of spring shooting. It is still of fairly frequent occurrence in parts of this country, but is everywhere eagerly shot down in the name of either 'science' or 'sport' by people who know nothing about the former and are incapable of appreciating the true spirit of the latter. The Bittern's nest is composed of reeds, and the four eggs are of a uniform olivaceous brown colour.

The Little Bittern is now also a mere visitor to the British Isles; but its former breeding within our area is a less firmly established point than in the case of the larger species.

FAMILY, PLATELEIDÆ (SPOONBILLS).

THE SPOONBILL

(Platelea leucorodia).

The Spoonbill, or 'Shoveler,' so called because of the shape of its bill, formerly nested in East Anglia and some of the southern parts of England, but is now only an occasional wanderer to our shores. The four to six whitish eggs, rather rough in texture and variable in shape, have reddish-brown markings. They are laid, at considerable intervals, in a nest of reeds.

Plate 51.

GANNET OR SOLAN-GOOSE—*Su'la bassa'na.*

Length, 34 in.; wing, 19 in.

[STEGANOP'ODES: Pelecan'idæ.]

T 158

ORDER, STEGANOPODES (CORMORANTS, &c.);
FAMILY, PELECANIDÆ (PELICANS, CORMORANTS, &c.).

THE GANNET, OR SOLAN-GOOSE

(Sula bassana).

Plate 51.

One of the largest, handsomest, and withal most peculiar of our native Sea-fowl is that whose old and best name is 'the Solan,' or 'Soland'—'Sula,' in its Icelandic form—which now figures as the scientific name of the genus, and is also a part of several place-names. To the name 'Solan,' 'Goose' has been most inappropriately added, and 'Solan-Goose' is now the commonest popular name for the species. Such a title, however, is so obviously faulty and misleading that ornithologists now give preference to another name for the bird—namely, 'Gannet'—which has less popular hold in this country. It is also the general title of the genus, which includes the so-called 'Boobies' of the more southern seas; but even it probably has a distant etymological connection with 'Goose.' After all, has not the name 'Solan' pure and simple the prior and better claim?

In point of apparent size the Solan is goose-like enough, but here the resemblance practically stops! To begin with, the beak is long and strong and spear-like, and is noticeably of the type known as compound—that is, there are several distinct horny plates, recalling the scales of Reptiles, covering the bones of the jaws. The distance to which the jaws extend backwards unconcealed by feathers is responsible for the bird's peculiar 'expression,' if we may use the term.

Among other external features we may note that all four toes are included in the web, in the manner characteristic of the members of the Pelican family, and that the wings are long and pointed, and capable of carrying even this large bird in easy and graceful flight. For, clumsy as it may appear on land, the Gannet is no mean performer in the air. It can fly powerfully and swiftly; on occasion it can accomplish dexterous turnings and other evolutions, and it is at all times conspicuous on account of its magnificent feats of 'sailing' or 'soaring.'

Fish forms the greater part of its food, and its manner of obtaining this is strongly suggestive of the Tern's fishing method. For this reason the Tern receives the name 'Quarter-Gannet' on parts of the Irish coast. Wheeling at a considerable height above the water, the Solan sees a fish near the surface below it, checks in its course, and, with wings half-closed, plunges headlong on its prey, disappearing with a splash, to emerge in an instant with the victim it has speared. This habit was formerly turned to the bird's disadvantage by the fishermen of some of our northern isles, who, perhaps not unjustly, regarded its competition with disfavour. A fish was secured to a flat board painted a 'neutral' tint, and the whole anchored at some suitable spot, and arranged so that it always floated a short distance below the surface of the water. In this way many a hapless Solan was made to break its neck.

The *terra typica* of the Solan is of course the Bass Rock, that grand, rugged island which rises steeply from the waters of the Firth of Forth. The flocks of white birds which crowd its ledges and sweep the seas around are familiar to all who have ever sailed from or to the port of Leith. Various Auks and Gulls also resort to the rock in the breeding season, but the Solans are the chief feature. The precipitous cliffs of the towering pile

of Ailsa Craig at the entrance of the Firth of Clyde also afford nesting-places for great numbers of these birds. In fact, the British Solan colonies are sufficiently few in number to be enumerated in full. Nevertheless, our stock of Gannets is not small, for most of the colonies are of great size. Two Scottish colonies have already been mentioned; but there are still four others—Sule Skerry ('Solan Islet'), some forty miles west of the Orkney mainland; Sulisgeir ('Solan Rock'), a still more lonely isle, about thirty-five miles north of the northernmost point of the Lewis; Stack-an-Armin and Stack Lii, both off Boreray in the St Kilda group. Wales has one colony—namely, that on Grassholm, off Pembrokeshire; but England has none, now that the one on Lundy Island in the Bristol Channel has disappeared. Off the south-western corner of Ireland there are two colonies, a large one on the Little Skellig, and a smaller colony on the Bull Rock, seventeen miles away. These, with a colony in the Faroes and several off Iceland, make up the European list, for there are none off Scandinavia. There are transatlantic colonies, however, on some of the islands in the St Lawrence estuary and elsewhere.

At all seasons of the year Gannets may be found round the greater part of our coast-line. For one thing, they are birds of such strong flight that the areas which they fish over extend for a considerable distance on all sides from their nesting-stations. For another, a fair number even of mature birds apparently do not breed in some seasons; and as the Gannet takes six years to come to maturity, the number of immature, non-breeding birds is consequently large. In winter, too, the nesting islands are forsaken, and the species becomes more evenly distributed throughout our territorial waters. At this season something comparable to true migration takes place; but

these movements have not yet been sufficiently well analysed to permit of our making a general statement.

As early as February the breeding-birds begin to stream towards the few favoured localities which are to be the centres of their activities till late in the autumn. It is, however, some time later before the nesting operations actually begin. The nest is merely a heap of herbage and seaweed placed on a rocky ledge or on a platform or slope of the island. In May or June a single egg is laid. This is light blue in colour, more or less concealed by a white chalky outer layer, which soon takes on a darker stain. At this season the birds are quarrelsome among themselves, and are incorrigible thieves of each other's nesting materials. The old birds during incubation usually show little shyness of man, and will frequently allow themselves to be handled. There are instances, too, of Gannets sleeping on the water being so unwary as to permit their capture. This absence of great fear of man is not altogether surprising when we consider how little the birds are interfered with under favourable conditions, and how seldom they come into contact with human beings or their works. Their lives are indeed spent on the most barren and, from man's point of view, most useless portions of land, and on the pathless seas. Things are not always so prosperous, however. Sometimes they incur the jealousy of the fishermen, as we have seen, and sometimes the fishermen's nets prove disastrous to them. More serious still is the heavy toll levied by the Scottish islanders on some of the nesting colonies. Hundreds of young birds are taken annually in August in some places, and flesh, fat, and feathers are all put to separate account.

The nestlings are at first helpless and naked, and as the colour of their skin is black they have a somewhat

Plate 52.

CORMORANT—*Phalacroc'orax car'bo.*

Length, 36 in. ; wing, 14·5 in.

[STEGANOP'ODÆ : Pelecan'idæ.]

repulsive aspect. Soon, however, they become covered with white down, and then present a more engaging appearance. The down gives place to the first real plumage—grayish below, dark brown, spotted with white, on the upper-parts. At subsequent moults the feathers become lighter stage by stage, till at length the snowy plumage of maturity is attained.

THE CORMORANT

(Phalacrocorax carbo).

Plate 52.

'Weird' is perhaps the first epithet that would occur to one in summing up one's general impressions of the Cormorant. 'Weird and rather repulsive.' There is something vulture-like about it, with its cruel beak, its featherless skin about the face, and its amazing stenches! It is a large, powerful bird, but ungainly in flight. A large blot of ill-omened black against the sky, with neck at full length in front, and with great wings flapping quickly, it makes us think of Pterodactyls and the like.

We have momentarily compared it with a Vulture; but the Cormorant is no mere ghoul, but a predaceous bird in the highest sense. Fish forms its chief food, and this it obtains by direct pursuit, swimming under water with swiftness and dexterity, as may be seen in the glass-sided tanks of many zoological gardens. There also we may see that it does not swallow its victim under water, as the Penguins do, but carries it to land, or at least to the surface, and there tosses it in the air, catches it, and swallows it. The beak, we notice, is long and hooked, a form best suited for seizing and gripping the prey.

The Cormorant, we remember, is a member of the Pelican Order, so that we naturally compare its fishing and its weapon with those of the Gannet, and, if we may bring in a foreign species, with those of the Pelican itself. The former we have already described, and the latter must be known to everybody. The Pelican's lower mandible is a bag with a stiff but not inflexible rim, and this is used as a sort of surface tow-net, the birds forming in long line, and, gaping wide, sweeping the shallows. Thus we have three allied species fishing in three different ways. Their food is the same, but their methods of obtaining it are fundamentally different. Each method has its appropriate instrument perfectly adapted to its circumstances. The Cormorant pursues, twists, turns, and seizes; the Gannet soars, plunges, and spears; the Pelican sweeps and engulfs.

Conversely, we have unallied birds showing close resemblance in the matter of beaks and similar features, either through coincidence or through adaptation to the same mode of life. Examples abound: Crane and Heron for beaks, with length of neck and legs; Phalarope and Coot for feet; Swallow and Swift for beak and wings.

Thus we realise how much habit has counted for in the evolution of superficial characteristics such as the beak, the feet, and the wings, and we can understand how unreliable such characteristics are as a basis of schemes of classification, and into what errors they led the systematists of a century ago. As a mere system of conventional arrangement and docketing, a classification based on external characteristics might possibly be the most convenient. But this is a secondary and incidental object. The true aim of systematists is to unravel the complicated relationships in the evolution of species, and to build up their genealogical tree. To accomplish this,

one must study the fundamental and more permanent architecture of birds' bodies.

The laboratory, then, has its fascinations, and the results of its work strike deeper; but for the present we must return to the seashore and watch our Cormorants as they fly, pterodactyl-like, across the bay, or stand in a solemn row on the sands of the estuary, wings half-outstretched to dry in the sun and wind.

The Cormorant may be found round most parts of our coast throughout the year, and it nests in colonies on low islets, broad ledges of cliffs, and other similar situations. Inland also it is not unknown, and here and there a colony may be found on a cliff far from the sea. In Ireland, moreover, it nests in trees in company with Herons. A tree colony formerly existed in Suffolk, and on the Continent the Cormorant is found as a tree-nester far up the Danube.

The nest is a rather large heap of seaweed, herbage, sticks, and so on, according to locality. The stench of the decaying materials, of the young birds' half-eaten food, and of the other refuse, must be 'experienced to be appreciated.' The eggs, three to five in number, are laid in April or May. They resemble those of the Gannet in having a chalky outer layer over the pale-blue under-shell. The young are repulsive-looking, naked, and helpless nestlings, whose eyes do not open till a couple of weeks after birth. When feeding the young, the mother takes a great part of the head into her mouth. In immature plumage the Cormorant is dark brown above, dull white and pale brown below. In mature plumage the sexes are practically alike, although the male is the larger and brighter. The white patch on the thigh is only present during spring and early summer.

We have referred to the Cormorant's methods of

catching fish, and to its dexterity, and it only remains to mention the curious way in which this has been put to use by man. In China and Japan tame Cormorants have long been used by fishermen, a leather collar being placed round their necks during the proceedings to prevent them from swallowing their prey. In Europe this has only been a form of 'sport'—a sort of under-water falconry! It flourished in this country, especially under the Stuart kings, who themselves patronised it; but the office of 'Master of the Royal Cormorants' has no longer a tenant.

THE SHAG

(Phalacrocorax graculus).

The Shag is a smaller, less ungainly, and, on the whole, less common member of the Cormorant genus. From the prevailing greenish tint in its dark plumage, and the upright tuft which both sexes have on the head in the breeding season, it frequently receives the names 'Green' and 'Crested Cormorant,' the adjectives 'black' or 'great' being applied to its larger relative. It is found widely distributed round all our coasts, but does not penetrate inland. As a breeding species, it is found in localities similar to the maritime haunts of the Cormorant, which it indeed outnumbers on the south-west of England, on the west of Scotland, and on the western and northern Scottish isles. It resembles the Cormorant in habits, in general appearance, and in nesting arrangements. Its three or four eggs resemble those of the Cormorant in colour, but are smaller. Partially or totally albinistic varieties of both species, it may be remarked, are not unknown.

Plate 53.

PEREGRINE FALCON—*Fal'co peregri'nus.*

Length, 15 in.; wing, 12·5 in.

[ACCIP'ITRES: Falcon'idæ.]

ORDER, ACCIPITRES (BIRDS-OF-PREY);

FAMILY, FALCONIDÆ (FALCONS, &C.).

THE PEREGRINE FALCON

(Falco peregrinus).

Plate 53.

Dimly the features of the coastal moorland stand out, now vaguely visible, now obscured by a denser billow of the chill sea-fog that has for hours been stealing silently over the land. We tread warily on our cliff-top path, for we can hear the alternate splash and gurgle of a lazy sea hidden three hundred feet below us. The cliff-edge air-currents are making endless sport with the fog-wreaths, and the fantastic, ever-changing forms keep our attention towards the void. Suddenly a vague, dark form shoots rapidly upwards through the fog, reaches our level, poises the merest instant within the restricted limits of clear vision, resolving in the act into the shape of a strong, fierce bird. One swift glance, and it doubles with a dexterous twist; a few whirling strokes of long, narrow wings, and it has dashed with incredible speed into the mist.

This is as much as we usually see of the Peregrine Falcon, unless when we find it at its eyrie, for it is a bird which wastes no time on its comings and goings. Its long, narrow, curved wings are not suited for lazy, soaring circles, and very nearly every yard of its way is fairly won by rapid, forceful strokes. The same quality of wing gives it amazing dexterity in turning and doubling, and to this is added the wonderful accuracy and precision of its every manœuvre. It is not inferior to the Swallow, scarcely to the Swift, in the excellence

of its aerial powers, and it has besides an obviously enormous degree of actual strength.

'The most powerful bird for its bulk that flies' is the just verdict of a famous scientist. And indeed we may safely say that as a mere mechanical triumph of design, for strength and speed combined with accuracy, small bulk, and graceful lines, the Peregrine Falcon stands unsurpassed among the creations of nature or of man. Certainly it is unrivalled in this respect as the finest member of our avifauna; it is not only proportionately but absolutely the first, without restriction of size. Some larger birds are stronger, some smaller ones are swifter; but none possesses so perfect a compromise and combination, or such 'all-round' efficiency. None could hope to meet it in the air on equal terms and come off victor. It can choose its victims almost without restriction, and it has no enemies, bird or beast, but man. None but he dare rob its eyrie; none but he can take it by cunning, or slay it openly in full flight. Even the Eagle would pursue it in vain, and at times must even go in fear of the swift and deadly onslaught of a bird so much smaller than itself. Not, of course, that the Falcon presumes to hunt the so-called King of Birds; but if the latter pass by chance too near the Falcon's eyrie it will be fiercely harassed, and made to scream and yelp and throw itself into postures of defence, while it quickly escapes from the jealously guarded area. In justice to the Eagle, be it said that it could also put to flight a Peregrine encroaching in turn on *its* territory; for birds have no false notions of valour, and are not ashamed to retreat from a battlefield where they have in any event nothing but a 'bubble reputation' to gain. But in such a case the Falcon could retire by skilful manœuvring without fear of hurt.

The Peregrine was *par excellence* the bird of the ancient and noble pastime of hawking. The female is considerably the larger, and it alone was called the 'Falcon,' her smaller mate being termed the 'Tiercel.' The score of other terms for various ages and conditions need not be enumerated. The word 'Peregrine' refers to the partially migratory habits of the species in the wild state.

The Falcon was flown at the largest game, such as Herons and Wild-Geese. She could soon overtake these, and wheel round her selected victim, now itself rapidly mounting, until from a superior altitude she could 'stoop' and grapple with it, bearing it in its death-throes to the ground. The Tiercel was flown at smaller birds, such as now make up the chief part of its natural fare—Puffins and other Sea-fowl, Rock-Doves and Hooded Crows on the coast, Grouse, now its undoing, Golden Plover, Peewits, Wild-Duck, Teal, Rooks, and others in more inland haunts.

The exact method of capture differs with the size of the victim. 'Having arrived within a few feet of the prey, the Falcon is seen protruding his powerful legs and talons to their full stretch. His wings are for a moment almost closed; the next instant he grapples the prize, which, if too weighty to be carried off, he forces obliquely to the ground, sometimes a hundred yards from where it was seized, to kill it and devour it on the spot. Should this happen over a large extent of water, the Falcon drops his prey, and sets off in quest of another. On the contrary, should it not prove too heavy, the exulting bird carries it off to a sequestered and secure place.' So wrote Audubon, describing the habits of the practically identical American 'Duck-Hawk.' Most victims can be trussed in the air and forthwith carried off, for the Peregrine Falcon can bear a weight almost equal to its

own. It has been known to carry a Grouse or a Pheasant a distance of several miles, as, for instance, from the mainland moors or coverts to the cliffs of the Bass Rock. The attack is always from above, and it is no force of impact, but the mere grip of the powerful talons that ends the victim's struggles. Man, we have said, is the Falcon's only serious foe, and of him it is usually shy and wary. When anything is to be gained, however, it will behave with extraordinary boldness. Numberless instances are on authentic record of a Falcon dashing in and seizing a wounded bird on the wing before the sportman's eyes, or dealing havoc among the covey he has just 'flushed.' In such cases the suddenness, unexpectedness, and short duration of the manœuvre makes the danger small; but when a pair, as sometimes happens, exhibit a useless bravado near their eyrie it may prove their undoing should the keeper of the neighbouring moor have a grudge against them for their many meals of Grouse. It is, indeed, grouse-preserving which is responsible for the scarcity of the Peregrine nowadays. To the lover of wild nature a live Falcon is worth many dead Grouse; but it is only a few proprietors who can see the matter in this light. Many of the maritime haunts, however, are far removed from moorlands, and no one grudges the loss of the Puffins, whose numbers are well able to bear the toll. But there the collector, or, more dangerous still, the poor fisherman inspired by his prices, often carries on a sad robbery of the eggs of this and other rare birds.

With this species we have begun our description of the Birds-of-Prey, an Order whose general characteristics are at once so distinct and so well-known as to need no enumeration. One or two less familiar points may, however, be noted. As in this species, the female is usually considerably the larger bird, the difference being very

marked in some cases. The plumage varies considerably with age, although not changing with the season. The prevailing hue of immature birds and of adult females is usually a rich, warm, rufous brown. Adult males tend to show slaty-blue colours, especially on the tail. As with Game-birds, old, infertile females may assume male plumage. All the members of the Order we have to deal with belong to the typical group, that of the Falcons (in the widest sense). Vultures and others do not concern us, and to them the above remarks are not all meant to extend. In nesting economy the Peregrine Falcon is also fairly typical of the British Birds-of-Prey.

As already indicated, the Peregrine nests on cliffs. These cliffs may be coastal ones, or be far inland mountain-walls fronting on the moorland. Other sites are rare in this country; but old nests of Crows, Herons, and other tree-nesters are sometimes utilised. The species has been recorded as nesting on buildings, and in parts of northern Europe and Asia it has of necessity to lay on the open tundra. The birds, it is almost certain, pair for life, remaining together throughout the year. The rapidity with which another mate is found in case of accident to one of the pair has been frequently remarked upon. A single nesting haunt is often inhabited for many years in succession, but not necessarily by the same pair of birds, as shown by cases like that where one locality 'in Connemara known in 1684 to have been inhabited from time immemorial is still (about 1899) inhabited.'

For a nest the Peregrine Falcon usually chooses a natural crevice or scraped-out hollow on the cliff-ledge, no lining being added. The two to four, but usually three, eggs may be laid in April, but often not until much later. Maritime eyries, we have some ground for believing, receive their eggs considerably later than those

inland generally do. It has been suggested that this is connected with the food-supply—the Sea-fowl, which do not reach their nesting-cliffs till well on in the season. A curious point about these Sea-fowl is that those nesting on adjacent ledges to the Falcons show little fear. The Falcons seem to make a rule of never striking in the vicinity of the eyrie, and though the birds nesting near may not *know* this, they seem at least to get accustomed to the presence of their natural enemies. The Falcon's eggs have a very indistinctly blotched appearance, the prevailing tones being warm orange brown and rich brick red, both characteristic of the Order. Both birds incubate, and the period is long. The young are hatched covered with white down, as are all young Birds-of-Prey. They are, however, helpless, and have to be tended by their parents for many weeks before they reach full growth, attain their first real plumage, are led from the nest, and ultimately driven away. A typical trick that they have in the nest often proves disastrous. They turn over on their backs on the approach of danger and present their talons to the foe. The wily falconer, therefore, saves himself a risky climb by lowering to the nest a ball of wool, in which the nestling's claws soon become hopelessly entangled, allowing it to be drawn up!

THE KESTREL

(Falco tinnunculus).

Plate 54.

This small Falcon is the commonest and most familiar of our native Birds-of-Prey, and is found over the greater part of our islands throughout the year, but

Plate 54.

KESTREL—*Fal'co tinnun'culus.*

Length, 14 in.; wing, 9·5 in.

[ACCIP'ITRES: Falcon'idæ.]

migrates in winter from the north of Scotland. At that season numbers of birds from northern Europe arrive on our shores, most of them to go still farther. There is no reason why the Kestrel should not be allowed to become even commoner throughout the country than it is at present, because its actions are entirely beneficial to human interests, and it therefore deserves protection. The species is not so very much smaller than the Peregrine, but as a hunter it is an infinitely humbler bird. In southern countries it is even content to chase grasshoppers and other large insects. With us, small birds are taken to a very slight extent, but the diet consists almost wholly of mice and other small rodents. Thus the bird's further increase would be entirely in the farmer's interests. Nor need the game-preserver have any selfish fears to make him withhold protection from the Kestrels nesting in his woods. For the bird is absolutely harmless to game, unless perhaps a weakly young bird come its way by chance. And yet one may still find many a gamekeeper who knows his business so little as to make it a rule to shoot everything in the shape of a Bird-of-Prey, and nail up the corpse in his 'larder,' a sort of 'chamber of horrors,' on the side of a shed, or along a row of trees.

The Kestrel's method of quartering the ground is a matter of common observation. The flight is easy and graceful, and wide circlings are freely indulged in. The rather long tail is held straight out behind. The habit of hanging in one place with rapidly beating wings is extremely characteristic, and has given rise to the popular name 'Wind-Hover.' The cry is a shrill, short whistle several times repeated. The sexes scarcely differ in size.

In nesting habits this bird generally resembles its larger and nobler ally. Similar cliff-nesting sites are

chosen in coastal and mountainous districts, but elsewhere it nests freely in trees. In the latter case an old nest of some other species is utilised—usually a Crow's or a Ring-Dove's. The eggs are more numerous than the Peregrine's, from four to six being the usual number. They may be laid by April. The colours are similar to those of the Peregrine; but the eggs are more uniformly tinted, only the brick-red tone being usually present. The young are of the usual type.

THE MERLIN

(Falco æsalon).

As already remarked, the Falcons give their name to the whole family, which includes all our native Birds-of-Prey; but of the Falcons in the strict sense we have only four to deal with. The third is this species, which is similar to the Kestrel, but considerably smaller. The wings are shorter and the flight more dashing. The prey consists of small birds which are easily caught on the wing; even a Swallow is pursued with swiftness equal to its own, and followed turn for turn. As regards both agriculture and game-preserving it may be considered as practically non-injurious. It nests in very small numbers over much of Ireland and throughout Great Britain from Wales and the northern Midlands to Shetland. In winter it also occurs in the southern English counties. At that season it often frequents estuaries and similar haunts, preying on Dunlins, and the like. Its nest is usually a hollow in the moorland heather; the four to six eggs are deep brownish red in colour.

Plate 55

SPARROW-HAWK—*Accip'iter ni'sus.*

Length, 13 in.; wing, 7·75 in.

[ACCIP'ITRES: Falcon'idæ.]

THE HOBBY

(Falco subbuteo).

The Hobby is also much the same size as the Kestrel, but differs in many respects. The wings, for one thing, are very long, and the flight is correspondingly swift. The species is chiefly an uncommon summer visitor, nesting sparingly in a few of the southern counties of England. It has been recorded as nesting occasionally in the north, and once in Perthshire. It lays in the old nests of other tree-nesting species, and is a very late breeder. The three to five eggs are commonly closely mottled, with reddish brown on a yellowish ground.

THE SPARROW-HAWK

(Accipiter nisus).

Plate 55.

Still of course belonging to the Falcon family, but more narrowly grouped as a 'Hawk' (in the strictest sense), is the Sparrow-Hawk, which is almost as familiar and widespread as the Kestrel. Equally abundant in some districts, it is very strictly kept down in many where the Kestrel goes unmolested. And from a narrow, selfish point of view this persecution is not without justification, for the Sparrow-Hawk is a bold robber. Not only does it prey on ordinary small birds of every description, but it will frequently snatch a young Pheasant or Partridge, and has no fear of making a sudden raid on a poultry-yard. Birds the size of a Pigeon can be successfully dealt with, and the Sparrow-Hawk was quite a favourite of the

devotees of hawking, to which sport it is readily trained. Its flight is of the swift, dashing order, the wings being relatively short. When seen in the open it is easily recognised by this characteristic, and by the marked downward angle at which the tail is held during flight. The hunting method of the Sparrow-Hawk is usually that of a sudden dash at the unsuspecting victim. While on the lookout the Hawk flies within a few feet of the ground, and may thus clear a wall or round a haystack into the very midst of a party of small birds having no thought of danger. A victim is instantly selected, seized, and carried off, the whole manœuvre being executed in a flash. At these times the Sparrow-Hawk often shows its amazing skill at twisting in and out among branches while going at full speed. Sometimes a solitary bird far from shelter is openly pursued. The attacks are made from behind, not from above, as a Falcon 'stoops.' A flock of small birds, however, will often pursue and mob a Sparrow-Hawk, itself surprised in the open. The exact significance of this is rather doubtful. The obvious popular explanation seems hardly consistent with modern ideas of the working of a bird's mind.

When the Sparrow-Hawk has once carried off its prey, it takes it to some sheltered spot where it may be eaten on the ground in peace. The Hawk requires both feet to manage its spoils, and seems unable to perch properly during the process. Otherwise the species is markedly arboreal, and is absent from such treeless localities as the Scottish isles. There and elsewhere the name 'Sparrow-Hawk' is often the popular title of the innocent Kestrel, which is apt to suffer in consequence.

In nesting habits the Sparrow-Hawk also shows itself an arboreal species. The nest is almost invariably in trees, and is usually the work of the Hawks them-

selves. Small sticks are the principal material employed. Sometimes an old nest of a Crow or Wood-Pigeon is used, generally after additions have been made. In May four, five, or six eggs are laid in the nest at intervals of a couple of days. They have the typical orange and brick-red tints of the Order, not all over, but in large, bold patches on a whitish ground. At their best they are perhaps the handsomest eggs laid by any of our native birds. Incubation lasts between four and five weeks, and the young are of the usual type.

In plumage the Sparrow-Hawk presents a bewildering amount of variation, according to age, sex, and even individual. Birds of both sexes have been recorded as breeding while still in immature garb. In size there is also much individual variation, but the difference between the sexes in this respect is always marked. It is greater than in any other British Bird-of-Prey, and is so noticeable as to make it difficult for one unaware of the fact to believe they are of the same species. It is of course the female that is the larger.

THE GOSHAWK

(Astur palumbarius).

The Goshawk is also a true Hawk, and is in many ways a larger counterpart of the preceding species. Like the Sparrow-Hawk, it was a favourite of the old falconers, and was much used in the pursuit of the larger Wild-Fowl. The name simply means 'Goose-Hawk,' and it is frequently misapplied to the Peregrine Falcon, a fact which must be taken into account in considering the evidence of the Goshawk's former status in the British Isles. But a few Scottish records of its breeding half a century ago seem to

be authentic. It is now a rare wanderer, chiefly to the east of Great Britain. The Goshawk builds a nest of sticks in a tree, or repairs any old nest of some other bird. The four eggs are bluish gray, with or without a few reddish markings.

THE KITE

(Milvus ictinus).

Plate 56.

'Kites that swim sublime in still repeated circles, screaming loud,' are no longer, alas! to be seen above the streets of London, where a few centuries ago they were even more abundant than in the cities of part of southern Europe at the present time. Then their commonness excited the remarks of foreign visitors to the Metropolis; while now it is true that few 'who see the paper toys hovering over the parks in fine days of summer have any idea that the bird from which they derive their name used to float all day in the hot weather high overhead.'

It is long since the Red Kite disappeared from London and the south of England generally; but till late in last century it nested sparingly in the wooded Midlands of England and the central Highlands of Scotland; to Ireland it seems never to have been more than a wanderer. Even in these haunts it became extinct, and in 1895 the last young brood of the century was reared near Shrewsbury. Birds of the old stock still lived, however, and only needed opportunities to hatch their eggs unmolested by collectors. Therefore, in 1905, when efficient protection was procured for them by a committee of ornithologists, two pairs successfully reared their young in the mountain-forests of South Wales. From, it is believed, five birds in 1905, our native stock has increased to well over twenty. With

Plate 56.

KITE—*Mil'vus icti'nus.*

Length, 25 in. ; wing, 20 in.

[ACCIP'ITRES : Falcon'idæ.]

the continuance of the protection, it is to be hoped that the species will become to some extent re-established.

Collectors are the worst enemies of birds, seeing that they persecute a rare species *because it is rare.* And the rarer they make it the more they persecute it, so that the evil increases by leaps and bounds, and may soon lead to total extermination unless their murderous and at the same time senseless designs are thwarted by those who place a truer value on the wild-life of our native land. It is significant that those who have interfered in this and in many a similar case have been the real scientific students of bird-life, and that they altogether disown the collector, who delights to call himself a scientific worker, while he is really a kleptomaniac. No intelligent use is made of the stolen spoils by the average collector; no worthy advantage is derived from amassing series of egg-shells—it is the mere lust for collecting, hypocritically disguised. Worse than the collector himself is the 'hireling ruffian' who is tempted by the high price fetched by rare eggs and skins; but the responsibility for his baneful activities rests with those who have given these rarities a market value. That bird-nesting is a fascinating and interesting occupation there is no doubt; that collecting in an intelligent way, and on a reasonable scale, may form a part of it not altogether to be condemned we concede; that it is an essential or even a very useful part we cannot admit; that it should form *the whole*, as it so often does, must be condemned as unworthy of any intelligent person. And it is collectors who are no more than collectors that are the worst offenders. The man who will rob a rare bird's nest cannot possess the naturalist's spirit, and cannot either learn or teach from his results; he would do as much good to himself and to other people if he kept to the postage-stamps or tram-way tickets of his boyhood.

The earlier decrease of the Kite, however, was due to the relentless war waged with gun and gin by gamekeepers. In Scotland the value of some of the feathers for making salmon-flies was an added incentive to slaughter! The Kite's damage to game cannot have been serious enough to warrant such persistent persecution. It will take a weakly or young bird either on the moor or in the poultry-yard, but it is said to turn tail before the parent hen! Birds are not caught in the air, but only on the ground. They are also eaten there, for the Kite is weak as well as cowardly, and cannot carry any great weight in its talons. The greater part of the food, moreover, is carrion, and in cities offal and garbage of all sorts are taken. In London in the old days, as in other cities at the present, the Kites thus inhabiting the haunts of man, and doing him service as scavengers, showed great indifference to his presence, in strong contrast to their natural cowardice. Various instances of their acquired boldness are on record. It is even said that Kites would snatch meat from the hands of children in the streets.

Cowards, preying on the weak, carrion-eaters, acting as scavengers—there seems little of merit about them. But see them on the wing, and it is another matter! There they exhibit only skill and grace and beauty, and we at once forget the rest, and deplore the bird's extinction in its ancient haunts. As Buffon said, 'We cannot but admire the manner in which the flight of the Kite is performed; his long and narrow wings seem motionless; it is his tail that seems to direct all his evolutions, and he moves it continually; he rises without effort, comes down as if he were sliding along an inclined plane; he seems rather to swim than to fly; he darts forward, slackens his speed, stops, and remains suspended or fixed in the same place for whole hours without exhibiting the smallest motion of his wings.'

Although lacking in qualities necessary for the sport of hawking, the wild Kite was esteemed *as a quarry* before all birds. Its great powers of soaring enabled it to keep above the Falcon, thus giving no opportunity for the fatal 'stoop.' Only the finest, best-conditioned, and most skilfully-trained birds could hope to overmatch the Kite in its cloudward race and bear it to earth, and few but the Sovereign possessed such birds. Thus the quarry became known as the 'Royal Kite.'

'When the Kite builds, look to lesser linen,' for it, like Shakespeare's character who utters this warning, is 'a snapper-up of unconsidered trifles.' Newspapers, rags, and all sorts of odds and ends go to the making of the untidy structure which serves as a nest. Sticks form the more substantial framework, and the whole is almost always situated in a tree, although a crag-site has been recorded. In April or May the eggs are laid, two or three in number. They have irregular brownish blotches and other markings on a ground which is dull white or sometimes very pale blue. The nestlings are of the usual type prevailing in the Order.

The popular name 'Gled' or 'Glead,' formerly widely used for this species, refers to the *gliding* flight.

THE HONEY-BUZZARD

(Pernis apivorus).

The Honey-Buzzard is another bird that has been practically exterminated as a British-breeding species. It still occurs in fair numbers on migration in some parts of our islands. In Ireland it is only a rare wanderer to the eastern counties, and was probably never anything more. But at one time it nested pretty generally over the wooded

parts of Great Britain. Its chief enemy has been the collector, as, for instance, in one of its last strongholds, the New Forest. High prices were offered for eggs and skins of native origin, and the great beauty of the former may have been additional incentive to the collector. They are round and glossy, two or more in number, and creamy in ground-colour, with rich red or brown blotches. As indicated by the scientific name, and by the old name 'Bee-Hawk,' the species is almost entirely insectivorous! It is allied to the Kite, and is in no sense a Buzzard.

THE GOLDEN EAGLE

(Aquila chrysaëtus).

Frontispiece.

We have already indicated our personal inclination to award to the Peregrine Falcon the position of the finest and noblest of rapacious birds. And yet the Eagle is not without claim to his popular title of 'King of Birds.' The Falcon is at all times the embodiment of activity, boldness, and 'dash;' but the Eagle has an air of regal dignity and an appearance of massive strength. Standing perched on a jutting rock on a mist-wreathed mountain wall, he looks indeed the monarch of the wild glen; wheeling and soaring, hours long, at a great height in the clear sky, he seems supreme, unrivalled in his conquest of the air, with so much ease and dignity does he maintain his level and perform his evolutions. But he has other aspects, aspects with little dignity, little nobility, little that calls for admiration. None knew and loved him more than Macgillivray, but he admitted that 'his nobility has a dash of clownishness,

and his falconship a vulturine tinge.' We hold him at a disadvantage in captivity; but yet, if the conditions be of the best, he displays nearly the same bold, free lines, and shows almost the same wild, fierce looks as among his native mountains. Then some one he knows enters his cage, speaks to him, snaps his fingers in the monarch's face, and the fine lines and wild looks are gone—the feathers are erected and fluffed up, and he becomes almost spherical in outline. No longer is he a pirate king languishing in captivity, but a ludicrous buffoon. There he sits, a great fluffy ball, wearing a look of imbecile complacency, and uttering the while absurd little *chirps* of pleasure!

Again, in the wild state, the close observer of his habits will find evidence of the 'vulturine tinge.' The Eagle shows little boldness in asserting his kingship, but, on the contrary, shows himself ever ready to shirk danger and obtain food by easy and ignoble means. We have referred to the well-known soaring, but we must make it clear that this is not a method of hunting. It is a mere popular fancy that the Eagle spies his prey from a great height, and rushes down on it like a thunderbolt. No! When he hunts he flies low over the moors, 'stooping' from no great height on the Plover, Grouse, or Mountain Hare that he has just espied. In the actual seizing of these, it must be said, he shows more adroitness and agility than we should have expected from a bird of such apparently lazy movements. In bearing off his quarry he displays his great strength. He has been known to carry off a lamb several weeks old, and often does some damage to the flocks in spring. Whether any ground of truth underlies the stories of Eagles carrying off very young children one cannot be sure. One of our own High-

land traditions on the subject includes the carrying of a babe a distance of sixteen miles across the Minch! In Central Asia the Golden Eagle is trained by the Kirghiz horsemen to hunt the wolf. The bird, however, does not kill the wolf, but merely detains it by striking at it with wings and claws, giving the dogs and riders time to overtake the animal.

Often the Golden Eagle descends to mere carrion-eating, and this has proved its undoing in Ireland. Poisoned meat has there been one of the chief agents in its extermination, while it has not affected the Peregrine Falcon, which despises all food not procured by itself. In captivity also the Eagle will, of course, take food killed for it. In these circumstances we may study its methods of feeding. In has a definite way of attacking everything. Standing on a bird, it plucks the feathers skilfully with its beak, and does not tear it open and begin to eat until the whole is plucked clean. Seizing a fish and holding it firmly down at one end, it runs along it with its beak, breaking each vertebra in turn, before ripping the body open. When the food, whatever it be, is prepared, and a surface of flesh exposed, the Eagle holds it firmly down with one or both feet, and proceeds to tear off pieces with its beak, and swallow them forthwith. Very little is left except large bones or pieces of skin that have fallen away during the meal. Afterwards the claws are carefully cleaned with the beak, which is then rubbed, first one side and then the other, against the perch. Even in the miserable conditions of a small cage, or, perhaps worse, a hutch and chain, an eagle will live to a great age—well over half a century. No estimate of the normal life-span can of course be made from this; the conditions of freedom are at once healthier and harder,

and in any case most wild creatures have a violent end.

Speaking of the conditions of captivity, we may say that we have known an Eagle kept in captivity for fifteen years remain in very good condition, and continue to take the abundant exercise and daily baths which a roomy cage and good tank allowed it. It is often put forward in defence of the miserable coops allotted to Eagles and others in most zoological gardens that these birds become sluggish and vulture-like, not showing any desire to move so long as they are well fed; a large cage is therefore wasted on them. What conditions are responsible for this discrepancy of observation we cannot say.

In the wild state the Golden Eagle has a circumpolar distribution, but is much less common in the British Isles than formerly. In the west and north-west of Ireland a few still linger; once it was abundant and widespread. Up till about two centuries ago it nested in Wales and Derbyshire; up till about a century ago in the Lake District; and up till about half a century ago in the Scottish lowlands. To all these districts it is now only a rare autumn wanderer. From Orkney it has also vanished, and it is now confined, as a British-breeding species, to the Highlands and the Hebrides. There it receives protection against collectors and others from the proprietors and tenants of many of the vast deer-forests, where its grouse-eating propensities are not greatly objected to.

The nest is sometimes in a tree, more often on a mountain-ledge; both sites are found in use in Scotland. The nest is a large platform of sticks, lined with softer materials. The same structure is often added to year after year, and may attain great size. Laying begins early, at the beginning of April as a rule, even

in the wintry fastnesses of the Scottish Highlands. The eggs are normally two in number; three are sometimes found; and there are a very few authentic records of four. The ground-colour is dull white, and the thinly scattered, irregular markings may be grayish, yellowish, or reddish brown. We believe that it is usual to find one well-marked and one almost plain egg forming a clutch; but which is laid first does not seem to be on record.

A magnificent series of photographs of Golden Eagles at their nests in a Scottish 'corrie' has recently been published in book-form. The pictures were taken from a hiding-place at close quarters, giving splendid opportunities for study, and many interesting observations are described in the text. We are told how the parent-birds brought Grouse and Rabbits to their offspring, having first plucked them elsewhere, and how at first the young bird (only one survived) was fed by the mother-bird on titbits, such as the liver, while she ate the rest; and so on with all the details in the daily 'round' of the first eleven weeks of the Eaglet's life. Then it forsakes the eyrie, but it is still protected and fed for some two months longer. And finally the devoted parents, who for five long months have tended their offspring with loving care, turn on him as a foe and drive him forth into the outer world.

Many stories there are of the Eagle's ferocity, and its attacks on human beings near its nest; but whatever the truth of these, the testimony of the careful observer referred to is that 'of all our shy birds the Eagle is the most timid, and generally remains out of sight for an hour or more if disturbed from its nest,' which, in the early stages, it is even prone to desert entirely.

Plate 57.

WHITE-TAILED OR SEA-EAGLE—*Halia'etus albicil'la.*

Length, 33 in.; wing, 24 in.

[ACCIP'ITRES: Falcon'idæ.]

THE WHITE-TAILED OR SEA-EAGLE

(Haliaëtus albicilla).

Plate 57.

In the Erne, to use the fine old name of the bird now more generally called the 'Sea-Eagle,' or 'White-tailed Eagle,' we have a representative of a group allied to the typical Eagles, the chief of which we have just discussed. The Sea-Eagle is on an average a trifle larger than the Golden Eagle, but it is a bird of less noble and imposing mien. The plumage is altogether much grayer, and in the adult the tail is pure white, and the head and neck very pale in colour. A comparison of the respective plates will reveal a very noticeable difference in the proportions of the beak and the feathering of the legs.

Most of the Eagles which occur in England belong to this species, for the Sea-Eagles of northern Europe appear to be migratory in some degree; and examples —almost all immature birds, with brown tails and darker plumage—are therefore not very infrequent in the maritime counties. A century ago the Erne bred in the north of England and the Isle of Man, as well as in many parts of the Scottish mainland. Now, however, it is only found nesting on the cliffs of some of the western and northern isles of Great Britain. In Shetland it is now being carefully protected. In Ireland it was once even commoner than the Golden Eagle, but poisoned carrion and other devices have led to its numbers being reduced almost to vanishing-point; a few pairs still hold out on the wild western coast-line.

Although not exclusively marine, the Sea-Eagle prefers the vicinity of water, even if it be only a lake or a

swamp. The food is very varied—birds, mammals, carrion, and fish. The last-named forms an important item—very much more so than with the Golden Eagle. The Erne is not a particularly skilful fisher, and relies to a great extent on dead fish washed up by the tide. Some kinds of fish that frequently bask on the surface are, however, easily caught. Sometimes the prey proves too large, and the Eagle, being quite unable to extract its claws, is drowned, the fish ultimately perishing also. Sometimes, while not being able to fly, the Eagle manages with the help of a favourable wind to reach the shore. In such circumstances it will carefully use its beak to dig out its buried talons, and then to preen its plumage for flight. Then, and not till then, does it attack its hard-won meal; but an Eagle has sometimes been captured before these preparations were complete. The closely allied White-headed or 'Bald' Eagle of North America often resorts to piratical methods. When that much more successful fisherman the Osprey (or 'Fish-Hawk') is bearing home his prey, the tyrant swoops at him, and with threatening movements forces him to drop the fish. Then, darting like a thunderbolt, head first, and with wings working to increase the awe-inspiring speed, the Eagle overtakes the falling fish and sweeps off with it in an ascending curve.

Although of immense strength, the Sea-Eagle shows little boldness in its hunting. Except when pressed by hunger it seldom attacks a bird or mammal of any size, and it is subject to serious annoyance, although not actual attack, from Falcons, Crows, Gulls, and others, near whose nests it may stray; a pair of Skuas, for instance, will completely beat it off. It will also allow itself to be driven from a carcass by a dog, and will venture nothing but feigned swoops while its canine rival is satisfying its hunger.

Plate 58.

COMMON BUZZARD—*Bu'teo vulga'ris.*

Length, 21 in.; wing, 14·5 in.

[ACCIP'ITRES: Falcon'idæ.]

When an Otter has caught a fish and is eating it on some rock, an Eagle has been seen patiently awaiting its departure in order to obtain what was left.

In nesting habits the Erne resembles the preceding species in general details. The eyrie is of the same nature, and is usually placed on a cliff-ledge, whether coastal or inland. Trees and even large bushes are also not uncommon sites, those on islets in large lakes being especially favoured. The nest may indeed be on the ground; in some swampy regions it is a large pile of sticks rising many feet above the mud. 'On a flat islet in a small lake in Harris, one of the Hebrides, a pair of these birds bred for many years, although there are lofty crags in the neighbourhood.'

The eggs are laid in April, and are two in number, as a rule. They are pure white in colour, sometimes with a few reddish specks about the larger end. In appearance and upbringing the young resemble those of the Golden Eagle.

THE COMMON BUZZARD

(Buteo vulgaris).

Plate 58.

The Buzzard may in some respects of habit and appearance be likened to a lesser Eagle. Compared with the average Hawk or Falcon, it is not only a larger bird, but also one of heavier and stouter build. From its composition the 'dash' of these smaller kinsmen is absent, and in its place there is something, just something, of the massive strength and dignity of the Eagle, of which it might be designated a 'poor relation.'

The Buzzard is very often called a sluggish bird, but this is not altogether deserved. The flight is buoyant,

but apparently 'easy-going,' when we see the bird irregularly quartering the ground; but when the Buzzard wishes to get from place to place it shoots along at a pace which is deceptively slow in appearance but really very creditable, especially if we consider the small amount of exertion expended by its seldom-moving wings. Although less given to soaring than the Eagle, the Buzzard can on occasion perform marvellous feats of rising to an enormous height in a wide, lazy spiral, with the minimum of labour. When it has eaten, it may be seen standing motionless for a long time; but this habit it shares with the majority of predaceous birds, including, of course, the lordly Eagle.

Gamekeepers have waged a relentless, but what is more to be regretted, a needless war on this species, for there is not the slightest proof that it is detrimental to game. Weakly, young, or other birds are pounced on when occasion offers; but this happens so seldom that no importance can be attached to the fact. The Buzzard's usual prey is of a lowly order for so large a bird—field-mice and similar small mammals. Thus the Buzzard is a friend of the farmer, and deserves protection. Moreover, while the mouse-hunter is quartering the fields a few yards from the ground no flocks of Wood-Pigeons or other agricultural pests are likely to commence their accustomed depredations on vegetables and crops. Even to beetles, grasshoppers, and worms does the Buzzard sometimes resort for a livelihood, and at times it appears to eat carrion. It is probably the fact that Buzzards may be found at the carcasses of sheep which have been killed by bolder robbers or perished by other means that has given rise to the shepherd's misdirected hatred, which is responsible for many a clutch of smashed eggs among the hills in spring-time.

By one means and another the collector has also done his share, and the Buzzard has within the last half century been enormously reduced in numbers as a British-breeding bird. Now it is found only among some of the wild and hilly regions of Great Britain—for instance, in North Wales, the Lake District, the central and western Highlands, and the Inner Hebrides. In Ireland it has been almost, if not quite, exterminated, and only occurs as a rather uncommon autumn migrant.

In wooded districts the Buzzard often builds in trees; but among the hills, where most of its remaining British haunts are, it chooses broad ledges on precipitous crags. The nest is a bulky affair of sticks and the like. In this the two to four eggs are laid in April, and incubated by both birds for a matter of four weeks. The young are of the usual type. Three points of interest about the eggs of this species may be briefly mentioned. One is, that the percentage of addled eggs is high. Has this anything to do with the nature of the bird's food? Secondly, the eggs are often laid at intervals of some days, and the earlier ones may be incubated to some extent before the others are laid. Thus one chick may be hatched before the others, and will, on account of his strength, obtain most of the food brought to the nest, and may starve his nest-fellow to death. One addled egg, one starved chick, and one survivor is perhaps not an uncommon history for a Buzzard's clutch of three. Both these points are true of many other species of the Order as well as of this. The last point of interest to be noted is in connection with the question of colour; a great deal of individual variation is displayed both in the plumage of the birds and in the colour of their eggs. The latter are whitish or even bluish in ground-colour, and may be unspotted altogether, or they may be marked with red in places,

varying from minute flecks to heavy clouds and blotches. Is there, it has been asked, any connection between the plumage type of the bird and the type of egg it lays?

[The Rough-legged Buzzard, so called because feathered to the toes, is a cold-weather migrant to the British Isles, and there is no reason to believe that it was ever anything more, despite certain unauthentic statements to the contrary.]

THE HEN-HARRIER

(Circus cyaneus).

Plate 59.

The Harriers form a well-marked group of the Birds-of-Prey, and are distinguished by their slender build, their length of leg and tail, the long, pointed wings, and the slight ruff on the sides of the neck. Their method of hunting is also characteristic, and consists in quartering the open ground with great regularity, the flight being leisurely and very low. Field-mice, eggs and young birds, lizards, frogs, and even large insects are the prey.

Three species are native to the British Isles; but none of them is now common, and it must suffice to select one as a type. The Hen-Harrier was once fairly numerous over much of our area, but game-preserving and agricultural improvements have meant its virtual extermination. On only a few of the wildest moors in England and Wales is it now found nesting, and in Scotland and Ireland it is scarcely more flourishing. In winter the species appears to be even less common, but on the autumn migration it is more numerous. Slate-blue is the predominant colour of the adult male; but the female, which the immature birds resemble, is brown in hue.

Plate 59.

HEN-HARRIER—*Cir'cus cyan'eus.*

Length, 19 in.; wing, 13·5 in.

[ACCIP'ITRES: Falcon'idæ.]

So great is the difference that the birds were once thought to be distinct species, and the female is still sometimes called by the name 'Ring-tail,' from the bars on the tail. The male is called 'Blue-Hawk' or 'Dove-Hawk,' or wrongly receives such titles as 'Goshawk.'

The nest is placed on the ground on a bare moor or in a grain-field. It may be a slight or a bulky structure of roots and herbage. The eggs are from four to six in number and of a bluish-white colour, sometimes with yellowish or reddish markings. The female begins to incubate late in May, continuing for about three weeks. The young are of the usual accipitrine type.

THE MARSH-HARRIER

(Circus æruginosus).

The Marsh-Harrier is an even rarer member of the group, having been very seriously affected by the drainage and reclamation of many formerly marshy districts which it frequented. The head is creamy-white in colour, with dark streaks; the upper-parts are brown; the under-parts are buff, streaked throughout. The eggs are of an unspotted bluish-white colour.

MONTAGU'S HARRIER

(Circus cineraceus).

Montagu's Harrier was only a summer visitor at any time, and that only to the southern half of Great Britain, where a few pairs still nest, or attempt to do so, notably in East Anglia, that last resort of so many of our vanishing native birds. In the male the upper-parts are bluish gray in colour, and the under-parts white; the

female is brown above, and buffy-white below. The four or five eggs are pale bluish white, sometimes spotted with reddish brown.

THE OSPREY

(Pandion haliaëtus).

The Osprey has already been alluded to. There are traditions of its having nested in England, but none in Ireland. In Scotland it was formerly not uncommon; but it now trembles on the verge of extinction. As a migrant it occurs rather more numerously on the various coasts of the British Isles. As already mentioned, the 'Fish-Hawk' is found in North America—in fact, it is almost cosmopolitan—and in parts it is abundant, and nests in large colonies. The species differs from all other Birds-of-Prey in having reversible outer toes, probably an advantage for fish-catching and carrying. While being carried, the fish is held pointing in the same direction as the bird is flying, not transversely. The large nest of sticks may be in a tree, or on a ruin or a rock. The two or three eggs are white or buffish white in ground-colour, beautifully blotched with some rich reddish shade, and with indistinct purplish under-markings.

The name 'Osprey' (or 'Ospray') appears to be a corruption of 'ossifrage' ('bone-breaker'), a title rightly belonging to the Lämmergeyer, or Bearded Vulture, and quite inappropriate for this bird. The word 'osprey' of the plume-trade, on the other hand, is perhaps a corruption of the French *esprit*, and is given to the feathers of the Egret, a bird of the Heron family, and totally unconnected with the species just described.

Plate 60.

BARN-OWL—*Strix flam'mea.*

Length, 13·5 in.; wing, 11·25 in.

[STRI'GES: Strig'idæ.]

ORDER, STRIGES (OWLS);
FAMILY, STRIGIDÆ (ONLY FAMILY).

THE BARN-OWL

(Strix flammea).

Plate 60.

The Owls form an Order of which the limits are clearly marked and the characteristics very familiar. Indeed, no very great differences occur within the group, and all the members can be readily recognised by their general similarity to the few species which are well known to most British readers. A mere allusion to some characteristic features will therefore suffice. These are chiefly adaptations to the mode of life of the majority of the species. All are predaceous, and nearly all are nocturnal, only a few northern kinds being of more or less diurnal habits. The beak and talons resemble those of the true Birds-of-Prey, and the outer toe is reversible, as in the Osprey. Among other points of resemblance between the two groups, the female is usually slightly larger than her mate. Specially adapted for nocturnal hunting are the large, sensitive eyes, and the exceedingly well-developed ears, the latter characteristic, of course, being noticeable only on close examination. The softness which characterises the whole plumage ensures a very silent flight. But perhaps the most obvious point is the curious 'facial disc,' formed by a sort of 'ruff,' which, together with the very forward position of the eyes, gives the Owls a physiognomy peculiarly their own. The effect of this is greatly enhanced in a number of species by

two small erect tufts of feathers on the top of the head, popularly termed 'ears' or 'horns.'

The Owls range in size from birds smaller than Skylarks to birds larger than Buzzards. In colour they vary from the more typical mottled browns to the but slightly spotted white of the beautiful Snowy Owl of the Arctic. In both respects the present species stands midway. 'Barn-Owl,' 'Screech-Owl,' and 'White-Owl' are the commonest of the popular names applied to it. It is remarkable, as the late Professor Newton pointed out, that the English language, usually so rich in synonyms, has but the one name 'Owl' for the three or four common and easily distinguishable kinds found in the British Isles. In other languages separate names exist by which the commoner species can be designated without recourse to qualifying adjectives. The word 'Owl,' without qualification, is merely a general term for the Order. 'Owlet' (or 'Howlet') is only a poetic or popular diminutive, and carries no special significance.

The name 'Screech-Owl' refers to the familiar cry of this species, a cry which, heard unexpectedly, may for an instant startle the least impressionable, and make him readily understand how it may even terrify the ignorant and the superstitious. Weird cries are characteristic of Owls; and, heard as they are in the hours of darkness, it is only natural that they should have given rise to gloomy superstitions, and have led their authors to be widely regarded as birds of evil omen. Fear breeds hate, and so we find the Owl an object of general persecution at the hands of the ignorant. As a matter of fact, they are altogether the friends of man. They are skilful hunters, but devote most of their energies to the capture of rats and mice and their allies—all foes of the farmer. Various small birds are also taken, as opportunity offers;

and they seem to know instinctively that Owls are their enemies, for when an Owl is caught in the open in daytime, bewildered and dazed by the light, it is mobbed by the small birds, which sleep in terror of it at night. Blue-Tits and Chaffinches are often prominent in their boldness among these small persecutors. Large insects, occasional worms, and various small fry are taken by some of our Owls; some foreign species have specialised in fishing, and at least one British Owl has been observed in occasional pursuit of the art. The prey is usually pounced on, killed at once by the talons, transferred to the beak if small, or borne off in the talons if too heavy for the beak. If the prey is too large to be swallowed whole it is necessarily torn up; but a mouse, for instance, is swallowed entire. The bones, skin, and other indigestible parts of the food are afterwards thrown up in the form of pellets. This habit is shared by most predaceous birds, using the word in the widest sense, without reference to the natural Orders to which they belong. In the Owls it is particularly well marked, and great quantities of these castings may often be found at a nesting-site.

The Barn-Owl is almost world wide in its distribution, and in the British Isles it is abundant and widespread except in Scotland, where it is local, becoming almost unknown towards the north. It is for the most part a resident and sedentary species, but immigrations from the Continent have been recorded in some winters.

As the name implies, this Owl resorts to barns and other buildings for the purpose of nesting. Church towers, ruins, and even cliffs are also chosen, and dovecots are sometimes used, apparently without harm to the rightful inhabitants. Nest in the strict sense there is none; the eggs are often laid in the midst of the disgorged

'castings.' They are pure white in colour, and are more nearly round than is the case with most birds; the two ends are similar, and the length does not greatly exceed the breadth. Both colour and shape are typical of the Order. The young, too, are typical, and similar to those of the true Birds-of-Prey—helpless at first, but covered with white down. Owls are early nesters, and eggs of this species may often be found in March. The eggs are frequently laid in pairs at intervals of some weeks, the young birds of one set probably supplying most of the heat for the incubation of the next. Young of three ages have been found in one nest. The young in the nest utter a peculiar snoring noise, which is said to be used by the adults also. When a full-grown bird is 'cornered' and aroused in the daytime, it emits a hissing sound, snaps the bill violently and loudly, and erects its feathers all over its body. Other kinds behave very similarly.

'White-Owl' is quite an appropriate name for this bird, for it is typically very much lighter in general tone than the other Owls we have to deal with. As is usual with Owls, there is no plumage variation with either sex or season, and very little with age. As in some other species, however, two 'phases' occur quite irrespective of these factors. The one most common in the British Isles has the upper-parts predominantly orange-tawny, the facial disc white with a dark rim. The other is much darker altogether, and has buff-tinted under-parts and a chestnut tinge on the face.

'Luminous Owls' were recently a subject of discussion in the Press, examples showing a sort of phosphorescent light on their plumage being recorded from several districts. Many wild theories as to the origin and possible use of this luminosity were put forward. One

Plate 61.

TAWNY OR BROWN OWL—*Syrn'ium alu'co.*

Length, 15 in.; wing, 10 in.

[STRI'GES: Strig'idæ.]

of the few rational explanations is that the light was due to phosphorescent bacteria from decaying wood having been fortuitously transferred to the Owl's plumage.

THE TAWNY OR BROWN OWL

(*Syrnium aluco*).

Plate 61.

The Tawny, Brown, or Wood Owl, as it is variously called, is slightly the largest of our native Owls, and represents a somewhat different branch of the Order from that to which the Barn-Owl belongs. But the subdivision of the Owls is a difficult question, and the differences between the minor groups are not of a kind that concerns the general reader. The most noticeable difference between the two birds is in their plumage, the Tawny Owl's being of the mottled brown type which is more characteristic of the Order. In it there are also two 'phases,' one with a rufous and one with a grayish tendency, the former being the predominant variety in our islands. Under natural conditions, however, Owls are more often heard than seen, and the difference between the cry of the two species is perhaps the most generally useful means of identification. Where the Barn-Owl screams, the Brown Owl hoots—'Tu whit, tu who,' as Shakespeare syllabled the well-known note. Under the influence of a woodland night the timid or superstitious may perhaps find something to fear or dislike in the Brown Owl's 'hoot,' but to the less imaginative wayfarer it often seems a rather merry note. A common form of the cry is a rapid succession of short 'hoots' slurred together, producing a slightly eerie, shivering cry, which has been aptly compared to the bubbling sound made by blowing into

water through a tube. The cries are more often uttered soon after nightfall or just before dawn than at dead of night. One Owl takes up the cry from another, and where these birds are common the woods will sometimes ring with merry hootings, which will cheer on his way the benighted traveller who can take them as portents of good! Often a solitary bird, stationed all the time in one tree, will call for a long time in a characteristic, systematic way. First a single loud 'Hoooh,' then three or four seconds pause; then the vibrating water-bubble roll, 'Hoo-oo-oo-oo-oo-oo-oo-oo-oo-ooh;' then perhaps forty seconds silence, and the process is repeated. The immature birds have a cry which has been described as a harsh 'Kee-wick.' The species is the most strictly nocturnal of our native Owls.

The Tawny Owl is one of those birds which is common in Great Britain, but is, for some reason, entirely unknown in Ireland. In the larger island it is abundant and widespread, and in some parts of Scotland it is the commonest Owl. It will be noticed that both the Barn and Tawny Owls are common in England and Wales, while the one has solitary tenure of Ireland and the other almost the same of Scotland. The next species, however, the Long-eared Owl, is evenly distributed over the British Isles.

In nesting habits the Tawny Owl closely resembles the Barn-Owl, except that it is generally arboreal. When the nest is in a tree, the site is frequently the interior of a decayed trunk, but often the old nest of some other bird is utilised. Rooks' nests in the middle of frequented colonies have been known to be used in this way. It is not uncommon, however, to find the eggs laid in a more or less sheltered situation on some rocky crag, or even on the bare ground. Laying takes place very early, sometimes before the end of February. The three,

Plate 62.

LONG-EARED OWL—*As'io o'tus.*

Length, 14 in.; wing, 11·5 in.

[STRI'GES: Strig'idæ.]

four, or more eggs are white in colour and roundish in shape, as is usual in the Order. The young also are of the usual type. When its nest is in danger the Tawny Owl often displays considerable boldness.

THE LONG-EARED OWL

(Asio otus).

Plate 62.

As already mentioned, the Long-eared Owl is found throughout the British Isles in suitable localities—even in the Orkneys as a nester, and in the Shetlands as a migrant. It is an arboreal species, and is a common resident in most wooded districts. Over much of Scotland it is certainly the most numerously represented Owl, and has, all things considered, some claim to be considered the commonest British Owl, although outnumbered by one or other of the preceding species in many districts.

Nevertheless, it is by no means a familiar bird, and is often considered very much less common than it really is. This is chiefly owing to its comparative silence. It is a woodland species and strictly nocturnal, and its weird note 'Sheea,' with its curious whispering effect, much more often than not passes unheard or unnoticed by human beings. A short, barking note is also used at times.

The Long-eared Owl is one of our earliest nesters, and clutches may be complete before the end of February. They usually number from four to six, and the eggs are of the usual white, oval type. The old nest of a Wood-Pigeon, Crow, or Bird-of-Prey, or a Squirrel's drey, may be used, and sometimes a slight lining is added. Eggs

have been found laid on the bare ground. Several pairs of these Owls often nest within a very small area. Great boldness is sometimes shown when any one approaches too near a nest containing young Owls, and a parent-bird has been observed practising the trick of shamming disablement in similar circumstances. The young utter mewing sounds while in the nest. They are of the usual down-clad but nidicolous type, the down being mottled with light brown instead of being pure white. They have been observed to leave the nest and clamber about with the aid of their beaks before being fully able to fly.

THE SHORT-EARED OWL

(Asio accipitrinus).

The Short-eared Owl is a somewhat similar bird of about the same size, but with very small 'ear' tufts. It is not an arboreal species, but frequents open moorlands and marshy 'waste' country, and nests on the ground. It is also more of a diurnal hunter. It is a markedly migratory Owl, and is chiefly a winter visitor to the British Isles, over which it is then generally distributed. It nests in small numbers in a few suitable regions of Great Britain, from the south-west of England to the northern Scottish isles. Vole plagues, which occur from time to time in various parts of the country, are frequently accompanied by a corresponding temporary increase in the number of Short-eared Owls breeding locally. At such times, too, abnormally large clutches become the rule. The nest is only a depression among the heather of the moor or the reeds of the fen; the six or more eggs are of the usual white, rounded type.

THE LITTLE OWL

(Athene noctua).

The Little Owl is a quaint Owl of small size which has visited our islands in the natural course, but is now also a breeding species, having been introduced into several localities, from which it has spread to a considerable extent. The eggs and nesting habits are of the type usual in the Order.

To judge from the representations on coins and sculptures, it was this species that was the classic emblem of wisdom, the bird of the goddess Pallas Athene, or Minerva. But an ornithological authority remarks that 'those who know the grotesque actions and ludicrous expression of this veritable buffoon of birds can never cease to wonder at its having been seriously selected as the symbol of learning, and can hardly divest themselves of a suspicion that the choice must have been made in the spirit of sarcasm.'

ORDER, PICARIÆ;

FAMILY, CAPRIMULGIDÆ (GOAT-SUCKERS).

THE NIGHTJAR, OR GOAT-SUCKER

(Caprimulgus europæus).

Plate 63.

The Order which we now come to is one which it is impossible to define in any way. In fact, it cannot be considered as more than a temporary 'pigeon-hole' for a number of odd groups of rather doubtful affinities which have not yet been allotted their proper places in the scheme of classification! There is, it is true, a certain amount of structural similarity between the various groups thus slumped together, but there is not at present any unanimity of opinion on the subject. For our purpose, at any rate, the group is certainly an 'Order of odd families;' for if deep-seated relationships are doubtful, superficial resemblances are wanting almost entirely. An English name for the group is also lacking, and we must use the scientific one 'Picariæ,' a name which refers to the fact that the Woodpeckers form an *important* subdivision — we can scarcely say that they are *typical* of such a motley assemblage. The half-dozen members of the Order which are common enough British-breeding birds to be described here form a representative selection, each one belonging to a different family!

The first we have to deal with is the Nightjar, a bird of semi-nocturnal habits. In the breeding season it is distributed over the greater part of the British Isles; but

Plate 63.

NIGHTJAR OR GOAT-SUCKER—*Caprimul'gus europæ'us.*

Length, 10·5 in.; wing, 7·55 in.

[PICA'RIÆ: Caprimul'gidæ.]

it is rather uncommon in the north and west of Ireland and the northern half of Scotland, while it is absent from the outlying islands of the latter country. Everywhere it tends to be rather local on account of the kind of country it prefers to haunt. Waste lands covered with bracken or gorse serve it well enough, but it is especially fond of the 'bosky glades' of the English woodlands. There it may be seen on a moonlight night in summer flying gracefully and easily about, chasing the insects which form its food. To catch these it has a wide 'gape' armed with bristles, the beak itself being small. The mouth does not appear to be kept open all the time, as in some birds similarly equipped. On a darker night it is still quite capable of prosecuting its hunting; but we should be unable to detect its presence if it were not for the varied sounds it emits. The male is especially demonstrative in this respect, uttering at one time a whistle, at another a vibrating 'churr,' and again light-heartedly clapping the wing-tips together. Unlike many nocturnal creatures, the Nightjar by no means shuns the light of day, but is quite fond of basking in the sunlight.

This bird is the latest of our summer visitors to arrive, rarely putting in an appearance much before mid-May. September sees the exodus almost at an end, but a few stragglers sometimes linger later in mild districts. Not long after its arrival, the Nightjar sets about the serious business of the summer. The eggs are laid on the herbage or bare ground in such haunts as we have described. The eggs are two in number and oval in shape, both ends being equally rounded. They are exceedingly beautiful in colour, having dark-brown and bluish-gray blotching and veining on a creamy ground. Against a natural carpet of dry bracken or dead leaves,

both the eggs and the sitting bird are very inconspicuous. After eighteen days' incubation the eggs are hatched. Among the Picariæ, blind, naked, and helpless nestlings are usually found. But the present species is an exception in this respect, for the young are thickly covered with grayish down, and are fairly active from the first. Yet they are for some time entirely dependent on their parents for food.

An absurd but ancient and widespread popular superstition is expressed in the name 'Goat-Sucker.' Other popular names are 'Evejar,' 'Puckeridge,' 'Wheel-Bird' (from the whirring note), 'Night-Hawk,' 'Dor-Hawk,' 'Fern-Owl,' and 'Churn-Owl.' With regard to the last two, we may say that the Nightjars are not without resemblance to the Owls both in nocturnal habits and in general appearance. Modern researches, moreover, have shown that there must be a real, if distant, relationship between the two groups.

FAMILY, CYPSELIDÆ (SWIFTS).

THE SWIFT

(Cypselus apus).

Plate 64.

Surely no name could be more appropriate than that of 'Swift' applied to the familiar British bird which bears it! For sheer velocity of flight it and its near allies must be absolutely unrivalled. We have never seen any attempt at an accurate computation of its speed, and indeed the practical difficulties to be overcome are very great; but some writers have not hesitated to hint at two hundred miles an hour, and from rough estimates

Plate 64

SWIFT—*Cypselus apus.*

Length, 6·75 in. ; wing, [illegible]

[PICARIÆ : C[illegible]

over small distances this does not seem to us to be greatly exaggerated. Certainly it takes but a second or two for the bird to sweep across a wide arc of sky visible from some low-lying point of observation, and that, too, although it may be flying many hundreds of feet above us, and cannot easily disappear from our view. Often the Swifts fly at great heights, circling above their nesting-places on a summer evening, mere specks in the clear sky, at an altitude of a thousand feet or more above the ground. They spend most of their time in the air, wheeling and circling for hours at a great height, or, at a lower level, dashing past the house-tops in screaming bands. No birds have such a combination of speed and duration of flight, and to the Swifts we must surely award the palm as the highest type of aerial animal, considered as such. It is probably to the Alpine Swift that the absolute first place must be given; but it is only an exceptional wanderer to these islands, and our smaller native bird, its close congener, is scarcely inferior in prowess.

Not only in the popular mind of to-day, but also in the minds of capable naturalists of yesterday, Swift and Swallow rank side by side as obvious cousins. But in the light of modern researches this supposed relationship is found to be altogether non-existent. There is merely a superficial resemblance, caused by similar adaptations to similar modes of life, such as we have already had examples of. But in the more conservative internal structures the total absence of true relationship is at once apparent. Into these matters we need not enter, but one structural character claims our notice. In the Swallow, three toes are pointed forwards, and the fourth is long and pointed backwards. This arrangement is the one best suited for perching. But who ever saw a Swift perched on a telegraph-wire, one of the Swallow's favourite

stations? The Swift is incapable of perching, for all its four toes are pointed forwards. This unique characteristic is found only among the Swifts of the typical genus, and nowhere else in the whole bird-world. For clinging to a vertical surface it is an admirable arrangement. The Swallow tribe constantly utter low twittering notes, but also possess the power of true song. The Swift has a low, short note, too, but its usual cry is a loud, wild scream, 'Swee-ree'—in no way Swallow-like—and song it has none. The possession of feet for perching and of true song-muscles are important characteristics of the great Order of which the Swallows form a family, while the Swifts find their nearest allies in the Humming-Birds of tropical America, and are with them included in this present 'Order of odd families.'

The Swift and the Swallow both subsist on small insects caught on the wing by the method of rushing through the air with widely gaping mouth; many are caught before any are swallowed, the sticky interior of the mouth keeping them prisoners meanwhile. Both birds are provided with long, narrow, curved wings, a small bill, and an enormous 'gape.' Here the resemblance practically stops. The general colour scheme of the plumage, as well as the details of the moulting, are quite different. The nesting economy of the two is very dissimilar, and the general habits show little or no resemblance, apart from what is consequent on their common mode of life. Both are of necessity only summer visitors to the British Isles; but while the Swallow shows close correspondence with its allies in the times and manner of its comings and goings, the Swift arrives considerably later than any of them, and leaves very much earlier. The single 'early Swift,' moreover, is a rarity, for the birds usually arrive in a body at the nesting-site of the colony. The dates of arrival at two

colonies, even a few miles apart, may be quite different, and it has been suggested that the birds of a colony probably remain banded together in their winter-quarters and on their migrations.

Exceptionally a Swift has been recorded in England as early as the end of March, but usually it is late in April before the species appears even in the south, and well into May ere it reaches Scotland. From the time of its arrival it is fairly abundant and widespread in the British Isles, except in the extreme north of Scotland and its outlying islands. From the whole country it has usually disappeared well before the end of August, an extraordinarily early date.

Within this short period only one brood can, as a rule, be reared. Sometimes a second is attempted, but if the young are not ready by the time of emigration they are abandoned to their fate. About a month after the birds' arrival the eggs are laid in a nest composed of straw, feathers, and the like, snatched up as they blow about. These are glued together with a fluid secreted by the birds, a fact which reminds us of the 'edible nests' built by the Swiftlets of the East. The situation is generally a crevice of some sort, whether under the eaves of a house, in a church tower, in a ruined castle wall, in a precipitous cliff, or even in a hollow tree or other unusual place. The eggs are two in number, pure white in colour, long and oval in shape, and rather rough of surface. Eighteen days are needed for incubation.

The 'night-flying' of the Swift is an extraordinary phenomenon, which has attracted much attention, but still remains a mystery. Towards nightfall, unusual signs of activity may generally be noted among the Swifts of a nesting colony, and soon they band together for one last dash round the neighbourhood. On this they go faster

than ever, screaming their loudest. Then, apparently, they seek the shelter of their nesting-holes. But sometimes they have been observed to circle gradually upwards to an immense height, being lost in the gathering dusk. Patient waiting long after nightfall has failed to betray any sign of the returning birds. The matter must be considered an unexplained mystery; but some have been bold enough to suggest that those Swifts not engaged in incubation cap the species' reputation by sleeping on the wing!

The long wings and the peculiar feet of this species make it a bird unsuited for level ground, on which it is indeed but seldom seen. But of it a great authority wrote that, 'contrary to popular belief, birds sometimes succeed in raising themselves from fairly level ground.' We ourselves have known one rise without sign of difficulty from absolutely level ground. This was when one flew in at our window, got entangled in a curtain, and was thus captured. Placed on the carpet, it rose without difficulty, and flew round the room before being allowed to escape. A popular writer remarks that he has 'caught a few, a very few, in the act of dusting themselves in Kentish lanes, from which, in spite of the length of their wings, they can rise without quite so much difficulty as some chroniclers would have us imagine.' On the other hand, we have the testimony of many competent observers that they have placed Swifts on the ground, and found them unable to rise in spite of great efforts. Part of the explanation lies perhaps in the following statement, made after a score of trials: 'Drop him from a little height on to the ground, and he will often manage, with a sort of rebound, to flutter up at once; but lay him gently on rough ground or grass, hold your hand over him for a minute, and his muscles will become cramped, and he will

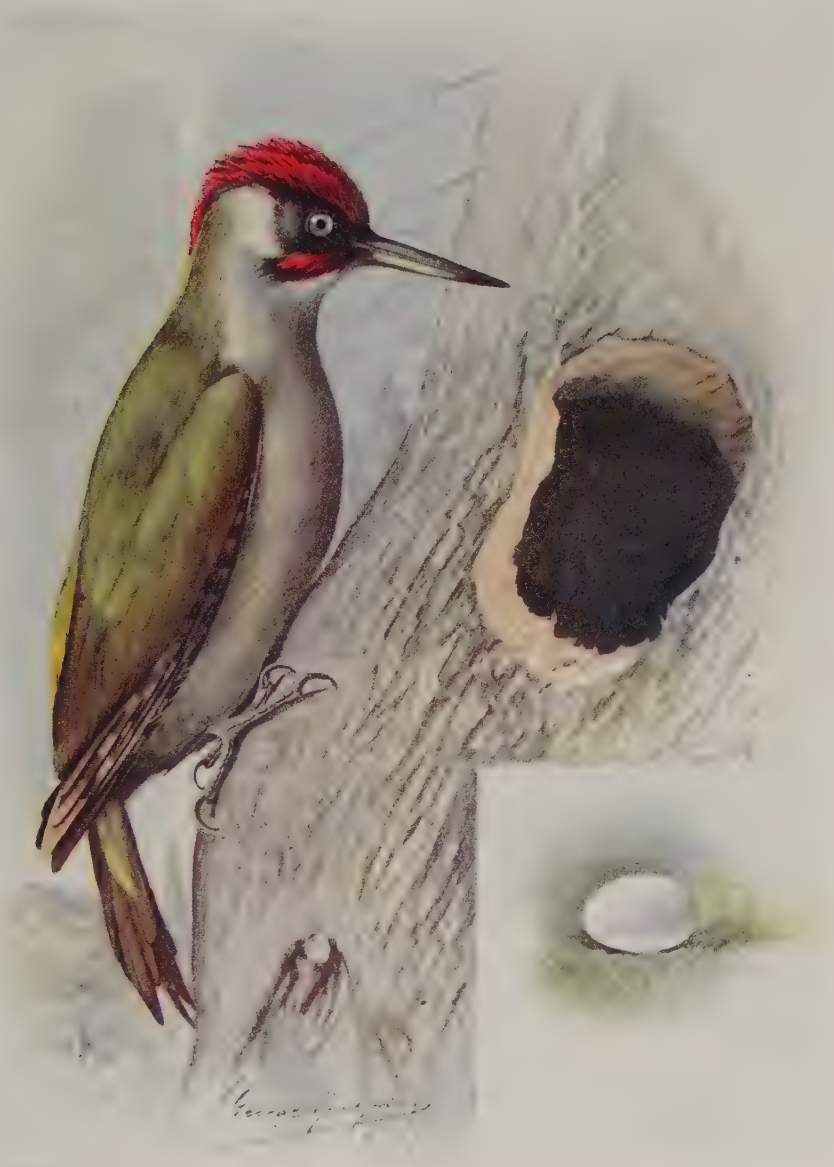

Plate 65.

GREEN WOODPECKER—*Geci'nus vir'idis.*

Length, 12·5 in.; wing, 6·4 in.

[PICA'RIÆ: Pic'idæ; Pici'næ.]

be quite unable to rise.' But this cannot be the whole truth, for in our own case the bird was not dropped but placed on the floor, and was, in fact, motionless on it for a few seconds. Neither, however, was there any holding of the hand over it until its muscles became cramped. Experiments should be made as opportunity offers.

FAMILY, PICIDÆ (WOODPECKERS, &C.);
SUBFAMILY, PICINÆ (WOODPECKERS).

THE GREEN WOODPECKER

(Gecinus viridis).

Plate 65.

Slowly following the tortuous woodland path, we may often be struck with the comparative scarcity of bird-life in what would seem to be the obvious sanctuary and retreat of all those birds which build their nests in trees. But many of these seem unwilling to nest where they must perforce go far afield to obtain proper supplies of food. For this or some other reason, the fringes of a wood are always the most thickly populated portions; in the heart of it we find comparative silence, and are forcibly reminded of the relative fewness of the species which can be called common forest birds. The Coal-Tit is certainly at home here, but its feeble notes do no more than emphasise the silence. Somewhere not far off a Ring-Dove is sure to be 'cooing,' but its soft notes have a way of seeming to come from an infinite distance.

While in the midst of such surroundings and such reflections, there will often break rudely on our ears a loud burst of demoniac laughter, 'Heu, heu, heu, heu, heu'—a something between a laugh and a neigh. At intervals

this is repeated, and the woodlands ring with the noise. It is difficult to judge from what distance or direction it comes, but as we wander on it becomes louder. There! That last time it was quite near and its direction certain. We look up and see on a tree not many yards away a fairly large, stout bird, crowned with bright red, clad in rich, dark green, and armed with a powerful, chisel-like beak. Its attitude is characteristic: it is clinging to the underside of a thick, slanting limb some twenty feet from the ground. It grips the bark with its strongly clawed toes, two in front and two behind on each foot. Part of the weight is borne and the balance preserved by use of the tail, the feathers of which have strong, spine-like shafts.

But this is all we have time to note, for the Woodpecker has seen us, and we have, indeed, approached too close for its liking over the silent, springy moss. It drops from its branch and makes off with a heavy, undulating flight. Soon we shall hear its discordant cry from some neighbouring part of the wood, or, if not much alarmed by our intrusion, it may take to feeding, and we shall become aware of the systematic 'tap, tap, tap' of its strong beak on the trunk of some tree. This tapping is continued as the bird moves jerkily in a vertical or spiral direction, and is a means of discovering decayed portions of the tree. When one is found it is soon pierced, and the various insects and grubs are quickly eaten up. Insects and their larvæ form almost, if not quite, the whole food of the Woodpecker, but they are often taken on the ground—ants, for instance, being greatly eaten. The Woodpecker possesses a long, protrusible, sticky tongue, which is an admirable supplement to its stout beak in its peculiar method of feeding.

Turning now to the branch to which we first saw our

bird clinging, we notice a circular opening, showing fresh white wood at its edges. On the ground below there is a tell-tale pile of chips, which the bird has not troubled to remove. These are quite fresh, for a new hole is generally made each spring. If we clamber to the hole we shall find that it goes straight into the heart of the wood, and then turns downward, soon widening out into a more spacious nesting-chamber. To explore this, however, we should have to violate the home with chisel and saw.

Did we do this, we should find from five to seven delicately white eggs on a layer of wood chips covering the floor of the cavity. Laying takes place in April, and the young birds hatched in the following month are at first naked and helpless, and in due course assume their first true feather plumage without any intermediate downy stage. In their immature plumage they are duller than the adults, and have barring on the under-parts. The adult female differs from the male in having black instead of crimson on the cheeks.

The species is resident where it nests, but its British area is limited. Everywhere it tends to be local, but it is abundant in most suitable districts of England and Wales, although becoming scarce towards the Borders. To Scotland and Ireland it is only the rarest of exceptional wanderers.

The hysterical cry is uttered most frequently in spring. Popularly it is supposed to foretell rain, hence the name 'Rain-Bird.' The name 'Yaffle,' or 'Yaffer,' also refers to the cry.

THE GREAT SPOTTED WOODPECKER

(Dendrocopus major).

This species, with its pied plumage, cannot be confused with the preceding one, nor has it the 'laughing' cry. Its general behaviour and nesting habits are similar, but the eggs are more rounded than those of the Green Woodpecker. It is also of a more retiring nature, and is thus often considered scarcer than it really is. In suitable localities of the south and Midlands of England it is not uncommon, but it is less numerous in Wales and the north. In Scotland it was formerly fairly widespread, but became almost extinct till it began to re-establish itself some years ago. Its extension of range is being watched with interest, and it is debated whether the new stock is of English or Scandinavian origin. For this Woodpecker is remarkable in being migratory, occurring in winter on our eastern seaboard. At that season, too, it sometimes wanders to Ireland, where no species of Woodpecker is usually found.

THE LESSER SPOTTED WOODPECKER

(Dendrocopus minor).

The Lesser Spotted Woodpecker is also less uncommon than is often supposed. It has a similar breeding range in England and Wales to that of its congener, but it is not known as a migrant. It does not differ widely in habits or in appearance, but for the markedly smaller size and the white bars across the back. The eggs, too, are smaller than those of the Great Spotted Woodpecker, though similar in shape.

Plate 66.

WRYNECK—*Iynx torquil'la.*

Length, 7 in.; wing, 3·4 in.

[PICA'RIÆ: Pic'idæ; Iyn'gidæ.]

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SUBFAMILY, IŸNGIDÆ (WRYNECKS).

THE WRYNECK

(Iÿnx torquilla).

Plate 66.

The loud ringing 'Qui, qui, qui' of the Wryneck, while slightly resembling a Kestrel's cry, is not altogether unsuggestive of a Woodpecker, and many features and habits of the bird also betray a relationship with the members of that group. Its curious, snake-like movements and the dark lines on the delicately pencilled brown plumage are as typical as the note. When disturbed in its nesting-hole it utters a hissing sound, which, with the movements referred to, gives appropriateness to the popular name 'Snake-Bird.' Altogether it is a quite unmistakable species.

It is only, however, in a rather limited area of the British Isles that the Wryneck is to be seen and heard —namely, the Midlands and more southerly and easterly portions of England. In this area it is a breeding species, but is absent in winter. Towards the west and in Wales it becomes rare, and the same is true of the north. In Scotland it is known as a migrant on the east coast, but otherwise only as an exceptional wanderer. From Ireland it is seldom recorded.

In England the Wryneck puts in an appearance in the first half of April, about the same time as, or just before, the arrival of the Cuckoo. From this the names 'Cuckoo's Mate' and 'Cuckoo's Leader' are derived. These popular names are widespread on the Continent as well as in England. Before the end of September the Wryneck has usually quitted our shores; but owing to its skulking

habits it is not conspicuous after midsummer, when the loud cry is abandoned.

The Wryneck, as already indicated, uses a hole for the purposes of nidification. Not having the Woodpecker's stout bill, it is forced to utilise any chance hole in a tree, or, failing this, one in the side of some bank. The eggs are from seven to ten in number, and of the pure white colour that one would expect. Laying begins about mid-May.

In feeding habits, too, the Wryneck is very Woodpecker-like. Although lacking the stout beak of the Woodpecker, it possesses the long sticky tongue so serviceable in the pursuit of ants and other small insects. It feeds largely on the ground, but also on trees. In autumn it is said to eat elderberries.

FAMILY, ALCEDINIDÆ (KINGFISHERS).

THE KINGFISHER

(Alcedo ispida).

Plate 67.

Classic myth ascribed to the Halcyon a maritime habitat and the custom of building a nest floating on the surface of the open sea. Alcyone, a daughter of Æolus, Lord of the Winds, was changed into the form of a bird; and to her was granted the boon of two weeks' calm at midsummer to brood in peace. For this reason all men who plied their trade on the sunny waters of the Mediterranean enjoyed a period of tranquil security during the joyous 'Halcyon Days.'

Ruthlessly does the hand of Science tear the veil of ignorance from this delightful legend, and reveal its utter

Plate 67.

KINGFISHER—*Alce'do is'pida.*

Length, 7·5 in.; wing, 3 in.

[PICA'RIÆ: Alcedin'idæ.]

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fancifulness! Yet it is but to substitute a story which, if marred by some prosaic details, has the merit that such beauties as it sets forth—and these are not trifling—may be actually observed and enjoyed.

The scene is not the open sea, however calm, but the side of some 'babbling brook,' very likely in the English lowlands. The fertile country is fully cultivated, but yet a few yards of 'waste' ground have been spared on both sides of the little stream. The sloping banks are thickly covered with luxuriant herbage and thick undergrowth, while here and there arise willows and alders, stretching out over the stream. A gentle breeze stirs their upper leaves, and causes a constant changing of the sunshine patterns that sparkle on the dancing waters. In such a place we may, with good fortune, find a Kingfisher, and from safe concealment study his royal methods of securing his prey.

'There he is, grasping the splint with his tiny red feet, his bright-blue back glistening in the sunshine, his ruddy breast reflected from the pool beneath, his long dagger-like bill pointed downwards, and his eye intent on the minnows that swarm among the roots of the old tree that project into the water from the crumbling bank. He stoops, opens his wings a little, shoots downwards, plunges headlong into the water, reappears in a moment, flutters, sweeps off in a curved line, wheels round, and returns to his post. The minnow in his bill he beats against the decayed stump until it is dead; then, tossing up his head, swallows it, and resumes his ordinary posture as if nothing had happened. Swarms of insects flutter and gambol around, but he heeds them not. A painted butterfly at length comes up, fluttering in its desultory flight, and as it hovers over the hyacinths, unsuspicious of danger, the Kingfisher springs from his perch, and pursues it, but

without success. There, swift as the barbed arrow, darting straight forward on rapidly moving pinions, gleams his mate, who alights on a stone far upstream, for she has seen us, and is not desirous of our company. He presently follows, and our watch is ended.'

The actual facts of the Halcyon's nidification are prosaic compared with the legendary version. It indeed comes as a shock to discover that a bird of such gorgeous appearance not only nests in a narrow tunnel in the side of a bank, but that this habitation is often in a very foul condition, littered with disgorged fish-bones and other refuse. But such is the case. Sometimes a crevice in a wall is used, or the tunnel is in the side of some sand-pit. Generally, however, the hole is in a sandy bank sloping towards water. The bank may be on the side of a small stream, a large river, a pond, or a lake, or even on a sheltered part of the coast-line. The tunnel is often dug many feet into the bank, and slopes gently upwards, as a rule. The same burrow suffices for many years.

In a wider chamber at the end of the tunnel the eggs, up to ten in number, but usually fewer, are laid on the refuse or the bare earth. They approach the spherical, are glossy in texture, and, as one would expect, pure white in colour. The shell is strong and thick, but yet curiously translucent. The stages which the nestlings go through correspond to those of the young Woodpecker.

The Kingfisher is resident on the whole, but has of necessity to perform certain local movements when some of its haunts become ice-bound. In Germany it is called 'Ice-Bird,' because a hole in the ice may attract several of the birds to the same spot.

Plate 68.

CUCKOO—*Cuc'ulus cano'rus.*

Length, 13 in.; wing, 8·5 in.

[PICA'RIÆ: Cucu'lidæ.]

FAMILY, UPUPIDÆ (HOOPOES).

THE HOOPOE

(Upupa epops).

This beautiful bird, with its dazzling plumage, large crest, and long, slender bill, is a summer visitor in very small numbers to the British Isles. Most of the immigrants are shot down on their arrival, but a few sometimes survive to nest in various southern English counties. The nest is placed in a hole in a tree, or in some similar situation. The from four to seven eggs are pale greenish blue when first laid, but become darker.

FAMILY, CUCULIDÆ (CUCKOOS).

THE CUCKOO

(Cuculus canorus).

Plate 68.

Early in April in the south of England, but not for a month later in the north of Scotland, the male Cuckoo puts in an appearance each year. From the time of his arrival till some time in June the familiar 'Cuc-koo' may be heard over almost the whole of the British Isles, although with much less frequency in the northern parts. In June his voice 'breaks,' and he 'changes his tune,' as the rhyme has it. In August the adults of both sexes, unfettered by family cares, take flight to warmer climes.

The Cuckoo is more often heard than seen, but yet in most districts it is common enough to be familiar to

all. The most striking feature about it is its undeniable outward resemblance to a Hawk. This resemblance extends to the various stages of the plumage, and is apparently sufficiently close to deceive small birds, who will mob a Cuckoo as they would a Hawk. That they have any natural instinct warning them against the Cuckoo, as such, can scarcely be believed, in view of the complete success of the deception practised by the species on the birds it makes the foster-parents of its young. The resemblance is too remarkable to be a mere coincidence, and it must be regarded as a real example of mimicry. The advantage gained by this mimicry is rather obscure, however. At least part of the truth may lie in the suggestion that the hawk-like appearance of the Cuckoo frightens away victims of its parasitic habits, and allows it time to work its nefarious purpose on their nests. But this does not explain the resemblance between the immature stages of Cuckoo and Hawk. Apart from plumage, the birds have nothing in common. The Cuckoo is a weak bird, and, apart from its parasitism, a harmless species, subsisting on insects and their larvæ. The resemblance in plumage, it may be mentioned, has probably suggested the popular superstition, explaining away migration, that Cuckoos become Hawks in winter!

It is, of course, in its nesting habits that the Cuckoo is most remarkable, these being absolutely unique so far as indigenous British birds are concerned. Other members of the family found in other parts of the world show similar habits, often with special modifications. One species, for instance, displays an extremely close mimicry of the very bird it usually victimises. Other kinds of Cuckoos, however, incubate their own eggs, and rear their own young in a more or less ordinary manner. On the other hand, certain utterly different kinds of birds possess

parasitic habits which resemble in a general way those of the typical Cuckoo.

A week or so after the male Cuckoos have announced their spring arrival to the countryside, careful observation will detect the arrival of the females. These are only slightly different in plumage and quite similar in size to the males; but they lack the familiar note, having in its place a low, bubbling cry. They are much less numerous as well as less noticeable than the males, for the species is markedly polyandrous.

Two or three weeks after her arrival the female Cuckoo begins to lay. The eggs, as every one knows, are ultimately deposited in the nests of other birds; but the exact procedure is still to some extent a matter of doubt. Direct laying would in most cases be impracticable, and the usual, if not the only, method is to lay on the ground near the nest, and then to transfer the egg to the nest with the beak. A Cuckoo has been more than once recorded as flying with an egg in its beak. In that case, however, the bird might have been disturbed before she had time to place the egg in the nest, or she might have had to lay before a nest was found, or was reached, if the position is chosen long in advance, as there is some reason to believe is the case. Or perhaps the egg was one of the foster-parent's, for the female Cuckoo often removes an egg or two of the original clutch when depositing her own in the nest.

The Meadow-Pipit, the Hedgesparrow, and the Pied Wagtail are common victims; other birds related to these, and various Warblers and Buntings, are also frequently chosen. In all, over a hundred species have been recorded as having been selected as foster-parents; but many of the cases are so absurd as to be obviously exceptional, while many other species are not common

enough to be of any importance as foster-parents for British Cuckoos.

The Cuckoo's egg usually bears a fairly close resemblance to the eggs of the rightful owner of the nest in which it is laid, and this is at the root of most of the problems connected with this aspect of the Cuckoo's life. Sometimes the degree of similarity is very great, but usually the Cuckoo's egg is slightly superior in size; it would be very much superior were it not that the egg happens to be exceptionally small in proportion to the dimensions of the parent. In some cases the resemblance in colour is not striking, and this is especially so in the case of the Hedgesparrow, the Redstart, and other birds laying unspotted light-blue eggs. Sometimes the Cuckoo's egg is also of this colour, but very often it bears no sort of resemblance to those of the foster-parent. Why this should be so it is difficult to say; but there may be some truth in the suggestion that this is a mere exception, recorded with a frequency out of all proportion to its importance, owing to its conspicuousness. Whether these rather obviously imposed eggs ever suffer ejection by the foster-parents does not seem to be on record; but if not, it is difficult to see what is the *raison d'être* of all this adaptive colouring unless some disadvantage of this nature is thereby avoided.

Assuming that this is the case, we have still to account for the great individual variation within the species. Were the Cuckoo's eggs all of one type, and its choice of foster-parents confined to one or a few similar species, it would be quite intelligible. Such, indeed, is the case with certain foreign kinds. But in our species we find a variety of egg-types corresponding to a number of foster-parents. The most obvious explanation would be that the egg was laid first, and then

carried about till a clutch was found to match it. But this, as we have seen, is not reconcilable with what we know of the habits of the Cuckoo. That the nest is chosen first seems to be the usual, if not the invariable, rule. That any control can be exercised through mental channels on the coloration of the egg about to be laid is difficult to believe, although theories on these lines have been put forward. More readily can we accept the hypothesis that *each individual Cuckoo lays a particular and constant type of egg throughout its life, and possesses, correlative with this, the instinct of selecting nests of foster-parents suitable to this type.* That both instinct and egg-type are hereditary, perhaps entirely through the female line, is an almost necessary extension of the theory. Thus we should have 'Titlark-Cuckoos,' 'Wagtail-Cuckoos,' and so on—'varieties' of the Cuckoo species differing not in plumage or structure, but in nest-selective instinct and egg-type. Taking each 'variety' separately, the phenomena now come within the scope of the ordinary theories of adaptation.

This hypothesis is not without objections, but it is perhaps not far wide of the mark. Certainly it is the most reasonable one in the light of our present knowledge, but there is still plenty of scope for investigation.

The number of eggs laid by any individual Cuckoo in a season is naturally difficult to determine. Some observers compute it at six or seven; others considerably higher. Let us put aside the question and note the subsequent history of a single egg.

The small size of the egg in proportion to the bird serves another purpose, as well as that of making it resemble the eggs of the small foster-parents. Shortage of food-supply within the shell probably hastens the date of hatching, for we find that the incubation-period is as short

as eleven or twelve days. Now the incubation periods of the foster-parents are usually from thirteen to sixteen days in length, so that the Cuckoo's egg hatches before or about the same time as the others, if deposited early in their incubation. And this is generally the case. If the Cuckoo's egg is laid before the others the nest may be deserted; if long after, the young Cuckoo may find itself unable to remove its rivals and to receive the great quantity of food which it needs. But if the egg is laid at the right time, the young bird has only to cope with eggs and very small nestlings. These it ejects from the nest by clambering backwards up the side, pushing before it an egg or chick resting in the hollow with which its back is specially provided. This hollow fills up after some days, and with it disappears the instinct of ejection, for the Cuckoo then makes no attempt to remove anything that the curious observer may place in the nest. But in the earlier stage the young bird will continue, till exhausted, to throw out the eggs which may be replaced. Two Cuckoos in one nest naturally have a battle-royal, probably ending in the ejection of the younger. This may occur through coincidence in the choice of two parent Cuckoos, or through lack of a sufficient supply of suitable nests for one. Three Cuckoos' eggs in a single nest have been recorded.

At first the young Cuckoo is blind and naked, and helpless and inactive except for its ejecting feats. For some three weeks it remains in the nest, and during this period and for some time afterwards it is zealously tended and fed by its foster-parents. Their parental instincts seem to be satisfied by this, and they do nothing for their own young—left to perish miserably outside. There is something pathetic about the picture—birds

Plate 69.

A TYPICAL NIDICOLOUS NESTLING—THREE STAGES.

BLACKBIRD

[PAS'SERES: Tur'didæ; Turdi'næ.]

For key, see page 226.

faithfully, if unwittingly, promoting the welfare of another species at the expense of their own.

Yet we cannot but marvel at the extent of the deception, for towards the end of the period the Cuckoo is about three times the size of its benefactors, and they may have to perch on its back to feed it!

The English name 'Cuckoo,' from the note of the male, may be variously spelt, and has its equivalents in most European languages.

NIDICOLOUS NESTLINGS.

Plate 69.

We have already dealt with the difference between nidifugous and nidicolous nestlings, and have summarised the salient features of the former (page 89). Nidicolous nestlings are characteristic of the great Order Passeres, to which we shall come presently. They are also found in the following Orders: Picariæ, Owls, Birds-of-Prey, Cormorants, &c.; Herons, &c.; and Pigeons. These groups are nearly all composed of tree or cliff nesting species.

We have also referred to the intermediate position of young Auks and Gulls, which are down-clad and open-eyed, but comparatively helpless. Similarly, some ground-nesting members of groups chiefly nidicolous have 'intermediate' young. A case in point is the Nightjar family (see page 204) of the Order Picariæ. On the other hand, the ground-nesting Passeres (Lark and Pipit families) have strictly nidicolous young (see, especially, page 287).

Nidicolous young present sufficient differences in characteristics to require grouping before they can be described. They naturally fall into four classes.

(1) The type found in the Kingfisher, Cuckoo, Swift,

and Woodpecker families of the Order Picariæ—nearly all hole-nesting birds. The young are hatched naked, and acquire their first plumage without any intermediate downy stage.

(2) The type found in the Order Passeres and in the Hoopoe family of the Order Picariæ. The young are born naked, except for a very few down-feathers growing here and there from the still hidden tips of the first real feathers, which soon sprout. (For other characteristics, see page 230.)

(3) The type found in the Heron and Cormorant Orders. The young are born naked, or nearly so, but soon acquire a good down-plumage, which is later replaced by the first plumage of true feathers.

(4) The type found in the Bird-of-Prey, Owl, Pigeon, and Petrel Orders, and in the Nightjar family of the Order Picariæ; the Auk Order also falls under this head if treated as nidicolous. The young go through similar stages to those of the third type, but they already possess the down-plumage when they leave the shell.

The plate shows three stages in the early life of a bird of the second type, the Blackbird [Passeres: Turdidæ; Turdinæ]:

(1) About a week old, in the nest.

(2) Just out of the nest.

(3) Well-grown, and with the 'first plumage' complete.

Plate 70.

SKYLARK—*Alau'da arven'sis.*

Length, 7·3 in. ; wing, 4·3 in.

[PAS'SERES : Alau'didæ.]

ORDER, PASSERES (PERCHING BIRDS);

FAMILY, ALAUDIDÆ (LARKS).

THE SKYLARK

(Alauda arvensis).

Plate 70.

Of the one hundred and thirty species which we have selected as worthy of plates and full descriptions, the sixty-eight already described are members of no fewer than fourteen natural Orders, some of them comprising families of widely different characters. Thus almost every second bird hitherto selected has been in some measure a fresh type, requiring a very considerable amount of general treatment before its own peculiar characteristics could be discussed. Now, however, we come to a dividing-line; for the remaining sixty-two species are all included in the fifteenth and last Order on our list. It comprises many families, it is true, but they show a comparatively small degree of divergence, especially after the first two families. So marked is their general similarity that we shall only need to treat a few outstanding examples at length, and may dismiss the majority with much briefer notice than has hitherto been possible, except in a few cases.

As well as being the most largely represented Order, both in the British Isles and elsewhere, this great group is in many ways the most important to the ordinary observer. The birds that nest in his garden or on his house; those that come for the food he throws out in winter; nearly all the birds that he notices on his rambles through lanes and fields and woodlands—in fact, almost all the common

and widespread species, belong to this Order. Some individual species are almost ubiquitous in the British Isles, and may be met with at almost any time and place. Certainly it is only on the bleakest mountain-top or on the stormiest stretch of coast that the Order is at any season unrepresented, while in most places its members will easily outnumber those of all the other Orders put together.

The commonness of the typical members of this Order, and the absence of great diversity between them, render a detailed general description unnecessary, and into the deeper-seated characters we need not and cannot enter. 'Passeres,' the scientific name, is merely a reference to the Sparrow, which is to some extent a typical member. 'Perching-Birds,' a convenient popular designation, indicates one of the more obvious structural points: three toes on each foot are directed forwards, and the fourth backwards. The last mentioned is always long and well developed, and is actuated by an independent tendon. This arrangement gives a power of grip of great service for perching, and as most of the species are markedly arboreal in habits, this faculty is an important asset. A moment's consideration will convince the reader that to maintain the balance while perched on a wire or slender twig, by sheer grip, is no mean feat.

Another striking point about the Order is the vocal powers of its members. No high development of song is met with outside the group, while within it nearly, but not quite, all the species possess true song-muscles and the power of using them. The degree of talent is very great in some species, but there is a great diversity of gifts.

As regards mode of life, the members of the Order may be divided into three main groups. A large number are insectivorous. Those that are purely so are of necessity only summer visitors to our area, with very few exceptions; but many mainly insectivorous species survive our winter

on a diet of berries, and the like. Seeds are eaten by very many of the birds, and they form almost the sole food of one of the largest families. The third division includes those birds which subsist chiefly on worms, grubs, and the like. Other types are less frequent; only a very few species, for instance, are predatory on other birds.

Great similarity is displayed in the nesting habits of the members of the Order. Most of them build good cup-shaped nests of dry grass, twigs, moss, or other materials, often lined with hair or feathers. Domed nests are built by a comparatively small number of species, and a few use mud or other less common nesting materials. A small proportion make very slight nests. These are principally birds which nest either on the ground, among long grass or broken rocks, or in holes in banks or trees. The usual site for Passerine birds, however, is in herbage, bushes, or trees, at heights above the ground varying from a few inches to many yards. A few are cliff-nesters, but many of these now find suitable sites on human dwellings.

The number of eggs laid is rarely fixed, as in Waders for instance, but is usually variable within small limits. These limits vary in the Order from three to five to about ten to fourteen. A nearly oval shape is characteristic. In a few species, with domed nests or sites in holes, the eggs are pure white. In most of the ground-nesters they are brownish and markedly protective in hue. But in the majority the eggs are almost white in ground-colour, but with a pink or green tinge, and the markings are irregular spots, generally not very dark, and sometimes collected in a zone towards the broader end of the egg. In a number of species a green or blue ground-colour is found, and this has doubtless some protective value among green foliage, probably against egg-stealing birds or other foes likely to see the nest from above.

About a fortnight is the usual incubation period, and the young are therefore hatched at no very advanced stage. In fact, they are always blind and helpless at first, and have only a few wisps of downy feathers. These grow from the tips of the still buried true feathers. The true feathers soon 'sprout,' and the feather-tracks may be well seen for a time; but the feathers grow quickly and soon *cover* the whole surface, although throughout life they *grow* only from these definite tracts. The early down-feathers are borne on the tips of the others for a time, but soon fall off. In about three weeks the chick has reached its full size, and completed its first plumage. It then leaves the nest and makes its first feeble attempts at flight. It learns quickly and is soon independent of its parents for food. Often they rear a second, and sometimes a third, brood before the season is over.

The Skylark itself is not a very typical Passerine. It makes a slight nest on the ground, and lays from three to five eggs of a protective gray and brown hue. Two broods are reared in a season. With its appearance, song, and general habits every one is familiar. It is a frequenter of the lowland open lands, waste or cultivated. There it is found throughout the year in almost every corner of the British Isles; but the individuals are migratory in marked degree, and their movements to, from, and within our area are of an extremely complex nature.

THE WOOD-LARK

(Alauda arborea).

The Wood-Lark breeds very locally in England and Wales, and has nested in the east of Ireland. It may be distinguished by its smaller size, less pronounced crest, shorter tail, and the broad buffish-white eye-streaks.

Plate 71.

RAVEN—*Cor'vus cor'ax.*

Length, 25 in ; wing, 17 in.

[PAS'SERES : Cor'vidæ.]

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The nesting habits do not differ widely from the Sky-lark's. The eggs are pale greenish white, with specks or zones of a brown or purple colour. The name of the species is often misapplied to the Tree-Pipit.

FAMILY, CORVIDÆ (CROWS).

THE RAVEN

(Corvus corax).

Plate 71.

From the earliest times the Raven and its kin have been regarded as birds of evil omen, and have figured as such in popular verse and story. Even yet, among the rural populations of many lands, the superstition dies hard. The reason for it is not far to seek. In the minds of northern peoples especially, night, darkness, blackness have always been symbolic of the adverse powers of nature; and long tradition, surviving in present-day language and convention, has associated the colour with plague and pestilence, death and sorrow. No wonder, then, that the Raven has an evil name, for he is blackness personified! Every feather has the sooty hue, bill and feet alike are black, and no lighter shade is present to relieve the sombre whole.

Add to deep-black plumage a voice of incredible harshness and habits which in olden times gave their owner a gruesome association with the slain of the battlefields! The tale is surely complete; what outward sign of iniquity could be added?

Time was when the Raven flourished exceedingly and was a common bird in England. Nowadays it has vanished from the east and midlands, and has become

rarer everywhere. Shepherds, game-preservers, and others have had grievances to settle, and collectors have had selfish desires to satisfy. But the Raven is both a wary and a cunning bird, for the mental development of birds probably reaches its highest level in this species; hence it has, by its wits, survived as yet the persistent war of extermination.

It is indeed less rare than is often supposed. The rocky headlands of the south and west coasts of England and Wales still harbour many pairs. The Welsh hills and the northern moors have their quota yet, and elsewhere inland it is not altogether unknown as a tree-nester. On the coasts and mountains of Ireland a considerable remnant still exists, and in some favoured glens of the Scottish mountains, on the precipices of the Shetland voes, and on some of the Hebridean cliffs, it is almost common.

The Raven is the type of the Crows, which form a very uncharacteristic family of the Passeres. Such large size and predatory habits are unusual in the Order, and the Crows, moreover, belong to the small songless section. But the perching feet are present, and there are many real structural affinities. Similarities in habit even are not altogether wanting, and we shall find little unusual in their nesting habits if we make certain allowances.

As already indicated, the Raven nests either on cliffs, mountain or maritime, or on trees; but the latter situation is now rarely resorted to in these islands. If there is an inaccessible ledge on a cliff the Raven will find it, and those who know the bird well tell us that it seems to have an eye for the possibilities of a site; in contrast to the Peregrine Falcon, for instance, which shows little capacity for choosing a site which may bid defiance to human climbing powers.

Plate 72.

CARRION-CROW—*Cor'vus coro'ne.*

Length, 19 in.; wing, 13 in.

[PAS'SERES: Cor'vidæ.]

The nest itself is a large and fairly well-made cup-shaped structure of twigs and heather, lined with wool and fur. The eggs, three to five or more in number, are laid very early in the season. From the cabinet point of view, at any rate, they are rather 'disappointing'; in colour they resemble those of the commoner Crows—pale blue-green, with darker blotches; and in size they are not nearly so much larger as one is apt to expect. The young of the Crow family are of the normal Passerine type; both the incubation period and the period spent by the young in the nest are longer than usual. This is especially the case with young Ravens. Other considerations apart, these periods tend to increase with the size of the bird.

A point that we must briefly touch on is the 'play' of the Raven. Many have described its strange aerial antics; how it dives and tumbles at a great height; how it bears pebbles and twigs up with it; and how it drops them, swoops after them, and recovers them with beak or claw. Still more remarkable is the scene witnessed by more than one fortunate observer in the central Highlands, when a dozen pairs of 'Corbies' gather together—obviously from a wide area—to disport themselves in company.

THE CARRION-CROW

(Corvus corone).

Plate 72.

'A lesser Raven.' These words form a good concise description of the appearance and habits of the Black or Carrion-Crow. It is like the Raven in general build, but is on a smaller scale; and, like the Raven's,

its plumage, legs, and beak are of one sable hue, except for the lustrous metallic reflections shown by some of the feathers in a good light. Its voice is not so harsh as the Raven's, and its habits differ slightly, partly because of the difference in size.

Everywhere it is hated, for although almost omnivorous, and often a carrion eater, it does immense damage to other birds through its raids on their nests in search of eggs or young. Everywhere, accordingly, merciless war is waged against it; but it still exists in small numbers over the parts of the British Isles included in its range—England, Wales, and the Scottish Lowlands. In these regions it is a more or less resident breeding-bird. On our eastern seaboard it is also to some extent an autumn immigrant, although whence it comes is a puzzling point in view of the distribution of the species, a question to be touched on in the next chapter.

There seems to be ground for believing that the Carrion-Crow pairs for life; but in winter it shows a certain gregarious tendency, and may be met with in small flocks, often including individuals of the next species. Even in summer, under favourable conditions such as are rarely found in the British Isles, a few pairs will nest quite near each other, in a sort of loose colony.

The nesting-place is usually a fairly tall tree inland or a cliff-ledge on the coast. Other sites are exceptional. The nest itself is a well-built, deep cup of twigs, in most cases comfortably lined with wool. In this the eggs are laid towards the end of April. They are four or five in number, and in colour are bluish green, with indefinite light-brown blotches. About eighteen days are needed for incubation, and the chicks are of the usual Passerine nidicolous type—blind and helpless, and with

Plate 73.

HOODED CROW—*Cor'vus cor'nix.*

Length, 19 in.; wing, 13 in.

[PAS'SERES: Cor'vidæ.]

only a few wisps of down. Rather over a month elapses before the young Crows leave the nest. They are less glossy in plumage than their parents, of which the male is slightly the brighter. They are often taken from the nest, for they make passable pets, and develop slight imitative powers.

THE HOODED CROW

(Corvus cornix).

Plate 73.

The parts of the British Isles where the Carrion-Crow is rare or unknown are inhabited by the closely allied Gray, Hooded, or 'Royston' Crow. These regions are Ireland, the Isle of Man, and the northern and western parts of Scotland. The dividing-line between the areas of the two birds in the last-named country roughly coincides with the geological division between Highlands and Lowlands—a diagonal from the 'Clyde' to the 'Dee' area. The demarcation is by no means regular or distinct, however, for much overlapping takes place, and the two kinds interbreed freely. In winter great numbers arrive on our eastern seaboard, and the Hoodie becomes widespread. Exceptionally, a few remain to nest in what is strictly the Black Crow area.

Those that reach our shores are but a small proportion of those that emigrate in autumn from northern Europe, in westerly and south-westerly directions. There is no difficulty in accounting for these vast hordes, for in Russia, Scandinavia, and northern Germany the Gray Crow is an abundant breeding-bird, and also in some of the Mediterranean countries. Between these two areas, however, there extends across central Europe a belt of

Carrion-Crow territory, connecting the part of western Europe inhabited by the bird with its Asiatic area. This curiously mixed distribution presents many problems, among them the presence of the Black Crows that occur in small numbers, as we have seen, as autumn migrants on our eastern seaboard.

In appearance the two Crows differ only in the gray parts of the plumage of the Hoodie. The habits of the two kinds are apparently identical, except in so far as they are affected by the varying circumstances of their respective areas. Thus, for instance, the nesting habits are alike; but rock-sites are necessarily more often used by the Hoodie in the Highlands than by the Black Crow in its more thickly wooded area. Sometimes the Gray Crow is compelled to nest on the ground among the heather, or in some other unusual place. In the mild southern region of Ireland, also, the Hoodie is some weeks earlier in its nesting operations. The eggs of the Gray Crow are said to have a tendency to be longer in shape and paler and brighter in colour than the others, but the clutches are, as a rule, indistinguishable. The notes of the two Crows are thought to be distinct by many who know both well. If the Carrion-Crow's note be syllabled as a harsh 'corrr,' the Hoodie's may be described as a more 'open' 'carrr.' Both are quite distinct from the much less harsh 'cah' or 'caw' of the Rook. When all is said, there is practically no great difference of any kind between the two Crows except that of plumage coloration, and that is more conspicuous than important.

For this reason, and because the two kinds interbreed freely on all their 'frontiers,' many deny their right to be considered as separate species. They should, we are told, be considered as mere colour 'phases.' To this, however,

Plate 74.

JACKDAW—*Cor'vus moned'ula.*

Length, 14 in.; wing, 9·3 in.

[PAS'SERES: Cor'vidæ.]

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there is one important objection. When interbreeding occurs, obvious hybrids are sometimes produced; but it seems to be more usual for half the brood to turn out Black and half Hooded. This implies a considerable amount of 'fixity' of the characteristics in question, and places the divergences on a different level from ordinary colour 'phases,' where such an endless series of intermediate forms exists that it is difficult to find two individuals alike, and impossible definitely to lay down any hard-and-fast types. The fixity of the difference seems to make the birds more than colour 'phases'; but still the degree of difference may be so slight as to make them something less than species—namely, races or sub-species. This, however, raises the academic question as to what constitutes a ground for specific separation. Into that we cannot enter; for convenience in treatment we have adhered in this work to the usual custom of retaining the specific distinction and nomenclature.

In north-eastern Europe the Hooded Crow attains an abundance not known within our area, and flocks of countless thousands pass westward and southward on migration. As with many Birds-of-Prey, the rarity of systematic game-preserving is responsible for the more prosperous circumstances of Crows and others on the Continent. Both Birds-of-Prey and Crows, however, themselves become 'game,' a frequent and interesting method of shooting them being that of taking cover at the edge of some open space in which is tethered as a decoy an Eagle-Owl or a Snowy Owl. In East Prussia and elsewhere, the natives of some out-of-the-way districts take great numbers of Hoodies every autumn, and preserve them for winter food.

THE JACKDAW

(Corvus monedula).

Plate 74.

Its smaller size is the chief point of difference between the Jackdaw and our other typical Crows. In both sexes the plumage is of the usual glossy black hue, except for a grayish collar-like patch, which covers the back and sides of the neck. The iris of the eye is conspicuously white. Immature birds hardly show the gray patch and are much less glossy, but they have the white iris. The language of the Daw is apt to be abrupt; 'kae' and 'chock' are attempts to syllable typical notes.

In its habits the Jackdaw is to some extent less harmful than its allies, for it eats worms and insects and their larvæ for the greater part of the year. But, like other Crows, it is ever on the lookout for stray morsels, and in summer it becomes a sad robber of the eggs of smaller birds. Its less overwhelming size gives to the rightful owners a chance to defend their nests—a chance which they do not have against the tyrannous Crow, black or gray. But this advantage is generally nullified by the fact that the Daw usually hunts in pairs, if not in larger numbers, for at all seasons it is a markedly gregarious bird.

Over the greater part of the British Isles colonies of Jackdaws are irregularly but abundantly distributed, the strength of these varying greatly. In some districts it is unaccountably local, and may be absent from considerable stretches of country not apparently lacking in suitable nesting-haunts. Towards the north-west of Scotland it becomes scarce, but is still found as a breeding species as far as some of the Inner Hebrides to the west and

Plate 75.

ROOK—*Cor'vus frugil'egus.*

Length, 19 in.; wing, 12·65 in.

[PAS'SERES: Cor'vidæ.]

Orkney to the north. It is probable that our own birds are more or less resident throughout the year, but in autumn large numbers of Jackdaws from northern Europe may be seen arriving on our eastern seaboard. At times their movements affect other parts of our area. In spring a return migration may be noted.

The original nesting-haunts of the Jackdaw were doubtless cliffs and rocky crags. In such haunts, whether by the sea, along a deep-cut river, or on a bare mountain face, colonies are still often enough to be found. But, like many other cliff-nesting birds to which the presence of sea or stream is not essential, the Jackdaw has discovered that man-made erections of stone form an exceedingly effective substitute for natural walls. Where, indeed, is the Daw so safe from man as among his own chimney-pots?

Chimneys, indeed, form the typical situation when the nests are on houses. Either the Daw is very conservative in its choice of a nesting-place, coming to the same house over and over again, or chimneys of modern form are not suited to its needs. Probably both explanations are true; but in any case it is usually on a few of the older houses of a town that the colonies of Jackdaws are to be found. Sometimes it is not a house, but a castle or church, ruined or otherwise, that is chosen. Most old cathedral cities can boast of a goodly number of Daws, and if we observe them closely in their flight through the air we shall soon discover that the great tower harbours the chief colony.

When the nest is upon an unchimneyed building or on a natural cliff, it is almost always in a hole or sheltered crevice of some sort. Other situations are rabbit-burrows and holes in hollow trees, and, exceptionally, among the branches of trees open to the sky. The

nest itself is a pile of twigs, often of absurdly large dimensions, as the smoke-filled rooms of many an old house testify. A lining of wool or other material is added, and the Daw's propensity for bearing to its nest bright but useless articles is proverbial, and has formed the key to the plot of many a tale. The four to six eggs, laid late in April, vary from pale bluish green to grayish white in ground-colour, and the markings are more definite in shape and darker in hue, as a rule, than those on the eggs of the other typical Crows.

THE ROOK

(Corvus frugilegus).

Plate 75.

Over the greater part of the British Isles the Rook is by far the most abundant and familiar kind of Crow, and it is to this species that the loosely used popular name 'Crow' is most frequently applied. Not only is it very common, by no means avoiding the neighbourhood of human habitations, but it is also conspicuous because of its very markedly gregarious habits, and the amount of noise which always exists to remind the landowner of 'the black republic in his elms.'

Being a strictly arboreal species, the Rook naturally becomes less common in the extreme north of Scotland; but there it has of late been extending its range. Throughout the rest of our area it is almost ubiquitous, but it is rather more abundant in the north of England than in the south. Its British migrations correspond closely with those already described for the Jackdaw.

The nesting habits of a single pair of Rooks closely resemble those of a pair of Carrion-Crows who have

[illegible] *ca rus'tic*

Length, [illegible]8 in.; wing, 7 [illegible] in.

[PAS'SERES Cor'vidæ.]

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chosen a tree-site. The nest, rarely wool-lined, is of the same type. Non-arboreal sites are exceptional. The three to five eggs are very similar to those of the Carrion-Crow, but rather smaller. The young may always be distinguished by the colour of the inside of the mouth—dark flesh-colour at first, becoming slaty, whereas it is always pale flesh-colour in the Carrion-Crow.

The full-grown birds of the two species differ in many ways. Most obvious is the bare white patch on the Rook's 'cheeks.' This, however, is feathered till after the second moult. The Rook is built on more graceful lines than the Crow; the flight is lighter; the voice is much less harsh.

But the most distinctive feature of both the nesting and the general economy of the Rook is, of course, its gregariousness. Its social organisation has apparently reached a higher level than among any other species of birds, but does not appear to have received the attention it deserves. Accounts there are without number of Rook 'trials' and what not, but such descriptions as we have seen have been so overlaid with fantastic interpretations as to be rendered almost worthless. In the apparent absence of serious scientific study of the subject we feel that it would be unprofitable to attempt any discussion.

THE MAGPIE

(Pica rustica).

Plate 76.

As we have already said, Crows have been held from antiquity to be birds of good or evil omen, according to the circumstances of their appearance, and in the primitive augury of our superstitious peasantry the present species

plays a prominent part. The number of birds seen together decides the nature of the event foreshadowed, and the rules of interpretation, varying with locality, are embodied in many interesting old rhymes. Other popular proverbs make the Magpie the type of a senseless chatterer, and thus indicate a notable trait in the bird's habits. In general, however, its habits may be said to be very similar to those of the other members of the Crow family. In structure it shows its right to a place in this family, but a little apart from the typical group. In appearance it is a small Crow—much smaller than one would think from a first glance—with a long tail and pied plumage. The latter characteristic is, of course, the reason for the name 'Pie,' to which the popular prefix 'Mag' was added so long ago that it has become as integral a part of the name as 'Jack' has of Jackdaw.

The strictness of present-day game-preserving is responsible for the scarcity of the Magpie in many districts, but it is on the whole quite as common a species as even the disinterested bird-lover would wish. For although it obtains an honest living at many times of the year, at others it adopts the thieving habits typical of the family. Its depredations are in no way confined to game, and a pair of Pies in a district will do great damage to the eggs and young of all the smaller birds. Though scarce in particular places, the Magpie is widely distributed throughout England and Wales; but in Scotland it becomes uncommon as we proceed northwards. In Ireland it was apparently unknown till late in the seventeenth century. Since then it has become common throughout.

In winter, considerable gatherings of Magpies may sometimes be seen at a roosting-place; but in the nesting season the species is found in pairs. The nest is usually high up in

Plate 77.

JAY—*Gar'rulus glanda'rius.*

Length, 14·25 in.; wing, 7·25 in.

[PAS'SERES: Cor'vidæ.]

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the fork of a lofty tree, but at other times may be in a bush or hedge within reach of the ground. 'In Norway it is occasionally under the eaves of houses or on the ground.' The structure of the nest is elaborate and typical. A foundation of turf or clay is made, and on this is built a substantial nest of twigs and thorny sticks. This is continued to form a complete dome, covering in the hollow of the nest, but leaving an opening in one side. The interior is well lined with roots and dry grass. This domed nest may be considered as a comparatively recent improvement on the ordinary crow-type of architecture, a supposition that is strengthened by the fact that the six or more eggs are of the usual crow-type—not unlike the Jackdaw's, in fact—instead of being white, as one might perhaps expect in a concealed situation.

THE JAY

(Garrulus glandarius).

Plate 77.

This species is the British representative of a very characteristic subdivision of the Crow family. At first we may be led away by the gaudy plumage of the bird, and think it misplaced in that group; but on consideration we see that we have to go no deeper than outward form and manner of flight to find signs of the relationship. In habits the similarity is also soon apparent.

Both sexes share the bright plumage, and immature birds are scarcely different from the adults. Of the plumage the beautiful blue and white feathers of the variegated wing-patch are the most conspicuous elements. Often, however, they have proved their owner's undoing, for these very feathers are in considerable demand for making

artificial 'flies' for angling purposes. The Jay is also much persecuted on the same grounds as its allies, and with equal justification. But like them it is a wary bird, and can hold its own against all but the most systematic and relentless persecution. Thus it still remains a not uncommon bird of the woodland portions of England and Wales. In Scotland, however, it is scarce and local, and is unknown in the northern half except as a wanderer; the boundary of its range has been extended slightly northwards of late. In Ireland the Jay has a very restricted distribution, nesting only in some eastern and south-eastern districts. As well as being an ordinary resident in England, the Jay also occurs as a migrant on the east coast. Considerable 'eruptions' are recorded now and then, and some of these have been synchronous with enormous exceptional migrations recorded in the same seasons from Heligoland.

The Jay is strictly a forest bird, and its harsh scream may often be heard in the gloomy depths where other bird-life is scarce. The nest may be placed in a bush, or at no great height in a tree. It is a well-built structure of twigs, lined with grasses or roots, and has nothing in the way of a dome like the Magpie's. The five or six eggs are grayish green, with brownish specks or zones, and sometimes fine black scrollings.

THE CHOUGH

(Pyrrhocorax graculus).

The Chough is a gracefully built member of the Crow family, with red legs and beak, the latter longish and slightly decurved. The bird is now rare owing to persecution and to the competition of the Jackdaw. It is a cliff-

Plate 78.

STARLING—*Stur'nus vulga'ris.*

Length, 8·6 in. ; wing, 5·2 in.

[PAS'SERES : Stur'nidæ.]

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nester, chiefly coastal. From the east of Great Britain the Chough has vanished. On the south-west of England it is still found in small numbers ('Cornish Chough' it is often called), and sparingly along the west of Great Britain, including the Isle of Man, to the Inner Hebrides. In Wales it has some inland haunts, as it has also in Ireland. It is also sparingly distributed round the Irish coast, except on the east.

The nest is placed in some fissure in a cliff, bank, or ruin—often in a cave. The three to five eggs are grayish or greenish white, spotted and streaked with grays and browns.

FAMILY, STURNIDÆ (STARLINGS).

THE STARLING

(*Sturnus vulgaris*).

Plate 78.

The appearance and habits of the Starling hardly require description, so abundant and noticeable a bird is it in practically every part of the British Isles. And yet only half a century ago the Starling was scarce and local over the greater part of the country, and it nowhere approached its present commonness unless in the southern and eastern parts of England. As an abundant resident species in Wales and in the west and north of England, it has been known only within the period mentioned. The same is true of the greater part of Ireland. In Scotland its history has been even more remarkable. In some localities, including many of the outlying islands, the Starling has long been known as a breeding species. In many wide intervening tracts, however, it was practically

unknown till well on in the latter half of last century. Since then it has become so abundant in nearly all districts that from its very numbers it threatens to become a pest, although its habits are in the main beneficial to man.

This is one of the best and most striking examples of the extension of the range of a species to within our own area and our own times. The study of the question is suggestive of many very interesting points in connection with the problems of geographical distribution. Indirectly, also, it affects migration. What relation, if any, do the migratory habits of the birds recently settled in an area bear to those of the original stock in the area from which the extension of range has taken place? This is an interesting 'side problem,' the elucidation of which might throw light on the vexed question of the inheritance of certain migratory habits. The point is rather a difficult one to study, because observations are difficult to obtain.

Although the Starling is found to some extent throughout the year in most districts, the fact that it is a migratory bird is obvious from the seasonal variations in its numbers. In some districts it becomes comparatively scarce in winter, while in mild regions like the south of Ireland its numbers are at that season greatly augmented by refugees from the severer weather of other parts. The British Isles as a whole, moreover, receive reinforcements from northern Europe on the approach of the cold season. A bird marked in Denmark has been recovered near Edinburgh.

For nesting purposes the Starling usually selects a hole or other sheltered situation, although the nest is not infrequently placed in a tree open to the sky. The more normal site is a hole in a tree, in a cliff or bank, or in a wall or building. Chimneys, pipes, and so on, are

Plate 79.

GREENFINCH—*Liguri'nus chlo'ris.*

Length, 6 in.; wing, 3·5 in.

[PAS'SERES: Fringil'lidæ; Fringilli'næ.]

freely used, and so are suitable nesting-boxes put up for the purpose. In some bleak regions, where trees and buildings are alike scarce, the nest may be found in a crevice among stones or in a peat-stack, or may be placed in a rabbit-burrow.

The nest itself is a large, untidy mass of dry grass, with or without a slight lining of moss or wool, and usually containing a few feathers. The eggs are four or five or more in number, and in colour are of a characteristic uniform blue of a very pale and delicate tint. The Starling seems particularly prone to deposit single eggs in unexpected places. It is quite a common occurrence to find an egg lying on the ground unbroken and not near any nest. Like other species nesting on human habitations, the Starling is sometimes recorded as laying at unseasonable times of the year.

After the nesting season is over, Starlings band together in bodies varying from parties of half-a-dozen to enormous flocks of many thousands of individuals. Among these larger bodies some astonishing aerial manœuvres may sometimes be witnessed. The birds appear to have regular roosting-places and lines of flight—points deserving further study. Over such a roosting-place a huge cloud of birds may of an evening be seen wheeling and circling at a great height, only to drop together, suddenly and quickly, to their chosen perches.

Much attention is rarely bestowed on the Starling, but it certainly repays observation. Looking at the birds from below as they fly to their nests or perches, they appear to possess a dark and sober plumage. But seen on the ground with a strong light on their upper-parts, the adults display a great variety of colour. This is almost entirely non-pigmentary, but is an optical effect of the plumage structure. This gives constantly varying hues

and reflections with the movement of the bird in relation to the source of light. The female shows less iridescence than her mate, and her light spots are larger. The immature bird is unspotted—and is brown above, gray below.

The Starling possesses a song of its own of no great merit; it is more notable on account of its great powers of mimicry. These it habitually puts to the test with much success; notes and snatches of song of other birds—often of widely different types—form the chief items in its repertoire.

FAMILY, FRINGILLIDÆ (FINCHES, &C.);
SUBFAMILY, FRINGILLINÆ (FINCHES).

THE GREENFINCH

(Ligurinus chloris).

Plate 79.

The Finch family is one of the best-known groups of 'Perching Birds,' containing as it does so many of our most familiar birds. Those members which we have to deal with all show a great degree of resemblance in size, form, and habits, but considerable variety in the matter of plumage. This is often bright and showy in the cock, the two sexes differing markedly in this respect. Immature birds, as a rule, resemble the adult hen, but may be even duller, and may have their colours obscured by dusky bars. Although there is generally but one moult in the year, there is, nevertheless, some seasonal change in many cases. This is due to the shedding of dull tips and edges in spring, which exposes the brighter portions of the individual feathers.

One of the most obvious structural characteristics of

Plate 80.

HAWFINCH—*Coccothraus'tes vulga'ris.*

Length, 7 in. ; wing, 4 in.

[PAS'SERES : Fringil'lidæ ; Fringilli'næ.]

the family is the large, hard, conical beak. This is an adaptation to a diet consisting chiefly of seeds. Insects, however, are taken in summer by most species to a greater or less extent, and the young in the nest are usually fed entirely on them. In search of seeds Finches have to spend much of their time on the ground, where they progress by hopping; but otherwise they are typical 'perchers.' In summer they are scarcely gregarious; but in winter they habitually pack together, the sexes very often keeping in separate flocks. No very high development of song is characteristic of the group, most of the birds possessing short refrains of stereotyped pattern and little musical merit. To this, however, there are several brilliant exceptions. The song is to be heard almost throughout the year in fine weather, although, of course, most regularly in spring and early summer. About the end of summer, however, there is a short period of almost complete silence. This corresponds with the occurrence of the annual moult, always a time of depression and low vitality.

The song of the Greenfinch is certainly not one of the exceptions, being very feeble. The call-note is very characteristic, a long-drawn-out 'schweezo'; and the alarm is a plaintive 'tewy.' The female and immature birds of both sexes are very much duller than the adult male.

The Greenfinch, or 'Green Linnet,' is resident in the British Isles wherever plantations of trees are to be found. The increase of these in some parts has led to a recent slight extension of the breeding range, which now includes Orkney, for instance. The species is also abundant as an autumnal immigrant on our eastern seaboard.

The Greenfinch shows no marked degree of ability as a nest-builder, the cup-shaped structure of roots, moss, and the like being generally rather ill-built. It is lined

with hair and usually feathers. Late in April or early in May the four to six eggs are laid. They are white, with a faint greenish tinge. The markings are small spots of faint gray and deeper rufous brown, often arranged in a sort of zone round the broadest part of the egg. A second brood is very often reared.

THE HAWFINCH

(Coccothraustes vulgaris).

Plate 80.

There can never be any mistake about the Hawfinch. It possesses in exaggerated degree some of the most typical Finch characteristics, and is in every way a thoroughly distinctive species. The plumage is brilliant with orange-brown and glossy black, and the size of the bird is considerably above the average for the British members of the family. The bill is enormously large and stout, and represents the extreme development of the conical 'seed' bill among our native birds. Inside, as has been lately pointed out, there are several hard knobs above and below, the function of which is apparently the crushing of hard seeds. The song of the Hawfinch is feeble; a four-times-uttered whistle constitutes the easily recognisable call-note of the species. In habits, this Finch is inclined to be very retiring.

The Hawfinch is another good example of a most remarkable extension of the British range within recent times. About 1825 the Hawfinch was still unknown, except as a rather scarce visitor to the south of England, and a few years later it was recorded as nesting within our area. During the whole second half of last century it steadily increased as a resident species,

Plate 81.

GOLDFINCH—*Carduelis elegans.*

Length, 5 in.; wing, 3 in.

[PASSERES: Fringillidæ; Fringillinæ.]

and at the close it had been known to nest in almost every English county, although as yet abundant only in the more south-easterly districts. The increase and extension have since continued, and the Hawfinch is now common except in the extreme north and west, while a steady diffusion over Wales has been noted. There are still only exceptional nesting records from Scotland and Ireland, but winter occurrences in these countries are widespread and not infrequent, although the species is only very slightly migratory. The rapid extension is ascribed to the increase of plantations and of market-gardens, the first affording nesting-sites and cover, the second abundant food at the critical season.

As indicated, the nest is generally placed in a tree. It is a rather shallow structure of twigs and lichens, lined with fibres, and sometimes with hair as well. The eggs are four or five in number. On a ground of greenish tint are bold random spots and streaks of light-grayish and dark-greenish brown. When the birds are unmolested only one clutch is laid in a season.

The hen is duller in colour than her mate, and in winter the bill of both birds becomes pale horn-colour. In the young it is greener, and the plumage is much duller and paler, with much barring and mottling.

THE GOLDFINCH

(Carduelis elegans).

Plate 81.

Possessing a bright and handsome plumage and an excellent and pleasing song, the Goldfinch is naturally in considerable demand as a cage-bird. This demand has, unhappily, been only too well met, and the profes-

sional bird-catcher is largely responsible for the great decrease in the numbers of native wild birds of this species. But the increase of agricultural land has probably been a factor also. A slight recovery has been noted in many parts since the introduction of legal protection.

Although always tending to be local, the Goldfinch may be said to be generally distributed over most of England, Wales, and Ireland. In Scotland it is uncommon, even in the south and centre, and rare or unknown in the north. As a visitor the Goldfinch occurs as an autumn immigrant on the east coast. At the same season there is an emigration, probably of both continental and native-bred birds, from the south. Reverse movements take place in spring; October and April are the chief seasons.

The nest may be in a tree or bush, usually at no great height. It is very small, very neat, and very skilfully made, the shape being a perfectly round and fairly deep cup. The materials are all soft—fine moss and wool for the structure, hair and feathers for the lining. Four or five eggs, with purplish-brown markings on a bluish-white ground, are laid late in May. Two broods are reared in a season. As with most Finches, the nestlings are at first fed on insects, but otherwise the Goldfinch lives chiefly on seeds; not grain, however, but the smaller seeds of thistles and other weeds.

The adult female is only slightly duller and paler in plumage than her mate, but the immature birds are very much less bright.

Plate 82.

HOUSE-SPARROW—*Pas'ser domes'ticus.*

Length, 6 in.; wing, 3 in.

[PAS'SERES: Fringil'lidæ; Fringilli'næ.]

THE SISKIN

(Carduelis spinus).

The Siskin is a near ally of the Goldfinch. Its habits are similar, and it is likewise a good songster. The blackish chin and crown, and the yellowish eye-streak, breast, and rump are distinctive features of the plumage, as are the small dark streaks especially marked on the light under-parts. It nests freely, if locally, in the fir-woods of the north of Scotland and of parts of Ireland; less numerously in the south of Scotland and the north of England; and exceptionally in the south of England, where it is chiefly known as a winter visitor. The four to six eggs are bluish white, speckled with dull lilac and reddish brown. 'Aberdevine' is an old name.

THE HOUSE-SPARROW

(Passer domesticus).

Plate 82.

The Sparrow is practically ubiquitous and a pest. These are the salient features of its position as a British bird. Some of the most elevated and isolated localities and some of the smallest and most barren islets know it not; but otherwise it is abundant throughout our area wherever there are human dwelling-places and fields of grain. In some northern districts, however, it has only recently established itself with the increase of cereal growing. So far as we can tell at present it is quite resident and sedentary.

What is true of the British Isles is almost as true

for the whole great European-Asiatic land-mass and its islands, from Ireland to Japan. In the 'frozen north' it is of course not found; but in India, the Mediterranean countries, and elsewhere, closely related races or species are present. This is its natural range—extensive enough! But either from thoughtless sentimentality on the part of emigrants from this country, or from a mistaken idea that this chiefly seed-eating bird would greatly help to keep down the noxious insects, it has been imported into North America, Australia, and New Zealand. The mistake is now recognised, but it is too late for anything short of a systematic war of extermination. For the Sparrow has everywhere spread and increased with extraordinary rapidity. Even at home it is noticeable how well the species thrives in spite of a very considerable amount of persecution.

That it is a pest cannot be doubted. Chief among its crimes is the eating of grain; but to its account must also be placed the bullying of other birds and the appropriation of their nesting-sites. One redeeming feature it has, for it shares with other Finches the habit of feeding its young on insects. Therefore, to get the greatest possible good out of the birds, nests should not be destroyed till the young are nearly fledged. At first sight this seems a rather cold and calculating method of warfare; but, given humane methods of destroying the young, it seems free from any but purely sentimental objections. By some the Sparrow is placed in a category by itself as the 'only true British bird pest'; but a few others, like the Hooded and Carrion-Crows and the Wood-Pigeon, must also be considered beyond the pale.

Of the Sparrow's general habits, of its various plumages, of the boldness of the city Sparrow, we need

Plate 83.

CHAFFINCH—*Fringil'la cœ'lebs.*

Length, 6 in.; wing, 3·4 in.

[PAS'SERES: Fringil'lidæ; Fringilli'næ.]

say nothing. Of its nesting habits we make a brief summary. The nest is a large, untidy, cup-shaped structure of straw or dry-grass and various odds and ends, with a lining of feathers. It is generally placed somewhere about a building—under the eaves, in the spouts of roofs, or in other more or less covered-in situations. Crevices in walls, &c., Sand-Martins' holes, and the like, are also used. Sometimes the nest is in a bush or tree, and it is then a domed structure with a hole in one side. The five or six rather longish white eggs, with their brownish markings, vary greatly in size, shape, and colour. As many as three broods may be reared in a season.

THE TREE-SPARROW

(Passer montanus).

A quite mistaken, but very prevalent notion exists that any Sparrow nesting in a tree is a Tree-Sparrow. From what has already been said it will be seen that this is not the case, and although the Tree-Sparrow typically builds a domed nest in a tree, it also nests on houses, &c., at times. The nesting-site is no means of identification. A conspicuous reddish-brown cheek-patch, divided by white lines from the black eye-streak and throat, serves as a distinguishing mark. The adult hen resembles her mate in plumage, but immature birds are less easy to identify. The eggs are smaller and more glossy on an average. The Tree-Sparrow is really very local, but is found here and there over much of Great Britain, and has recently spread to some of the outer isles of Scotland. On the eastern side of that country

it is almost unknown. In Ireland it has nested in County Dublin for half a century, but is otherwise unknown.

THE CHAFFINCH

(Fringilla cœlebs).

Plate 83.

A list of the few commonest everyday birds in almost any spot in the British Isles, other than an isolated skerry or a bleak and elevated mountainside, could not fail to include the Chaffinch. It is found in practically every corner of our area, and is a resident breeding species in every district but the Shetland Isles. In autumn its numbers in Great Britain are increased by continental immigrants. In Ireland it is considered to be the commonest of all land-birds.

The scientific name 'cœlebs' ('bachelor') refers to a habit common in this family. The sexes form more or less separate flocks in autumn. In summer the birds are non-gregarious, each pair keeping apart. Early in spring the cock's plumage gains an added brilliance, and towards the nesting season his exuberant vitality is expressed in song. The song has been syllabled in words which convey little, but are useful mnemonics for the novice: 'In another month will come a Wheatear.' In other words, it consists of a series of quick, jumbled notes, terminating in a long and distinct 'Wheatear,' the emphasis on the penultimate.

In its nesting habits the Chaffinch resembles its allies, and is one of those Finches notable for the extreme neatness of its nest. Lichens, moss, and wool are the chief materials used. The shape is a beautifully rounded

Plate 84.

LINNET—*Lino'ta cannab'ina.*

Length, 5·5 in.; wing, 3·15 in.

[PAS'SERES: Fringil'lidæ; Fringilli'næ.]

cup. Hair and feathers are used for the lining. The four to six eggs are greenish white, usually spotted and clouded with two reddish colours. Two broods are produced, as a rule.

THE BRAMBLING

(Fringilla montifringilla).

The Brambling is a near ally of the Chaffinch, and is known as a winter visitor in rather variable numbers to many parts of our area. There is a fairly reliable record of its having bred in Scotland in 1866. The six or seven eggs are very like those of the Chaffinch, but are greener, and are usually more distinctly marked.

THE LINNET

(Linota cannabina).

Plate 84.

The Linnets form a distinct group among the other Finches, and display obvious similarities, one with another, in both habits and appearance. The plumage is usually of sober brownish hues, relieved by patches of red, especially about the head. In the present species, for instance, there is in summer a bright display of crimson on the forehead and the centre of the breast of the adult male. The new feathers grown in autumn, however, have broad edges of pale gray which hide the crimson. These edges disappear in spring — a typical instance of a breeding plumage being assumed without a real moult. The red is not present in the immature and adult

female birds. At different seasons the Linnet receives the names 'Gray Linnet,' 'Brown Linnet,' and 'Red (or Rose) Linnet,' which distinguish it from the 'Green Linnet' (Greenfinch). The word 'Linnet'—popularly 'Lintie' in some parts—is a reference to the bird's partiality for the seeds of flax.

The Linnet is migratory to a considerable extent, but is found in fair numbers over almost the whole of our area throughout the year. It is also a familiar cage-bird, for it is an admirable songster and a good imitator.

The nest is composed chiefly of moss, with the usual lining materials. It is placed among whins as a rule, less often among broom-bushes or heather. Usually it is not actually on the ground, although naturally never very far from it. The four to six eggs have purple and red markings on a bluish-white ground. Two broods are sometimes reared.

THE TWITE

(Linota flavirostris).

The Twite, or 'Mountain Linnet,' is distinguished by its more slender build, longer tail, and yellow beak. The adult male has a rose-pink patch on the rump, but no crimson on head or breast. The species appears to nest only in Norway and the British Isles. In Great Britain it is found on the moorlands, from the Midlands of England northward, and is very abundant on the western side and the outlying islands of Scotland. In the Irish mountains it is also common. In winter it forsakes the higher levels and becomes more widespread, but does not reach the south of England. Except that it is a moorland species, its habits resemble those of

Plate 85.

LESSER REDPOLL—*Lino'ta rufes'cens.*

Length, 4·75 in.; wing, 2·75 in.

[PAS'SERES: Fringil'lidæ; Fringilli'næ.]

its allies. The three, four, or more eggs are pale greenish blue, blotched or streaked with reddish brown.

THE LESSER REDPOLL

(Linota rufescens).

Plate 85.

Small size and dark plumage are characteristic of the Lesser Redpoll, and the blood-red forehead and crown, present in both sexes, is very distinctive. The adult male in summer has also a carmine breast and a pink-tinted rump. The ordinary notes are low twitterings, but the song is of considerable merit.

The Lesser Redpoll is generally distributed over our area in winter, when it is gregarious; but in the nesting season it is rather local. It is found irregularly throughout the wooded regions of Scotland and Ireland and the northern half of England and Wales. In the south, south-west, and southern Midlands of England it is uncommon or unknown, but it is found in some numbers in the south-eastern counties.

Plantations of young conifers are perhaps the most typical nesting haunts; but the nest may be placed in other trees, or even bushes, or in willows in low, marshy ground. Moss, small stems and twigs, wool, and the like are the usual materials of the cup-shaped nest. Especial care is expended on the lining; this is composed partly of hair and feathers, but principally of the down of willow-catkins, and the like. The four to six eggs have reddish spots on a pale-blue ground. Two broods are usually reared in a summer.

This bird is here given its more usual place as a

distinct species, but some authorities consider it a mere race of the larger and lighter Mealy Redpoll, more than one undoubted race of which is to some extent known to us in winter.

THE BULLFINCH

(Pyrrhula europæa).

Plate 86.

In its appearance the Bullfinch stands entirely alone among British birds. It is an absolutely unmistakable species, and is familiar to all as a cage-bird. The bill is very short and stout, and the glossy black and bright vermilion of the adult male's plumage are exceptionally distinctive. The contrast with the dull female and with birds of immature plumage is very striking. The British race is smaller and darker than the continental one, the former being resident within our area. The species has a tendency to melanism —that is, an abnormally great proportion of black in the plumage. This tendency is especially to be met with among captive birds, and can to some extent be influenced by special feeding; but apparently wild birds of wholly black plumage have been recorded.

The Bullfinch, as we have said, is resident in the British Isles. Its distribution within them is wide, but does not include the more outlying islands or the treeless districts of the mainland. For the rest it is a comparatively common species throughout, but tends to be local even in those parts of Scotland which are suitable to its habits.

The nest is rather peculiar, consisting of a shallow cup of roots and hair on a platform of small twigs. It is placed in a hedge or near the end of a low bough.

Plate 86.

BULLFINCH—*Pyr'rhula europæ'a.*

Length, 6 in.; wing, 3·25 in.

[PAS'SERES: Fringil'lidæ; Fringilli'næ.]

The four or five eggs, laid in the first half of May, are greenish blue, spotted and streaked with a lighter and a darker shade of purple, especially at the larger end. The female undertakes all the duties of incubation.

The gardener wages bitter war on the Bullfinch, for, although it takes the seeds of many noxious weeds, it does much harm in winter and spring to the buds of gooseberry, currant, and other bushes. As with other Finches, the young are fed on insects, but they also receive at an early stage seeds that have been softened by the parents.

THE CROSSBILL

(Loxia curvirostra).

This remarkable Finch has the points of the mandibles elongated and crossed. The beak thus forms a pair of strong 'scissors,' very useful for dealing with the hard seeds of conifers and other trees. Pine forests are the chief haunts of the Crossbill, and it nests regularly in these in many parts of the British Isles, notably central Scotland. It nests irregularly in many other parts, especially after the great 'invasions' from north-western Europe that take place in some seasons. An invasion of this sort took place in the autumn of 1909. The eggs are usually four in number, and are grayish white in colour, with a few reddish-brown spots. Laying begins very early in the year.

SUBFAMILY, EMBERIZINÆ (BUNTINGS).

THE CORN-BUNTING

(Emberiza miliaria).

Plate 87.

The Corn-Bunting is distributed in varying abundance over the greater part of the British Isles, even to the most northerly of the Shetlands. In some regions it is rather local, and from the bleak mountainous districts in the interior of Wales and Scotland it is practically absent. In winter the birds band together in small parties to some extent, and there is a general movement towards the milder parts of the country. At the same time there is a considerable influx of oversea migrants.

The Corn-Bunting may be considered as the type of the second subfamily of the Finch group. At least two kinds of Buntings must be familiar to every reader, and the more characteristic points of their appearance and habits do not require to be dwelt upon.

The present species is of rather sober plumage, and might readily be taken for a Lark by the novice. The large, conical 'seed' bill is an obvious point of difference. As its name implies, the Corn-Bunting frequents agricultural land, nesting in a hollow in the ground, well hidden by the corn or herbage. In such places a bird of its dull plumage and rather retiring habits would naturally attract little notice; but the male Bunting becomes prominent by his fondness for the roadside telegraph-wires and other conspicuous perches in the neighbourhood of his haunts. Sitting there, he utters over and over again a short, monotonous song entirely lacking in musical merit. Like the even more familiar song of the

Plate 87.

CORN-BUNTING—*Emberi'za milia'ria.*

Length, 7 in. ; wing, 3·6 in.

[PAS'SERES : Fringil'lidæ ; Emberizi'næ.]

next species, it begins with a series of abrupt, hard notes, but instead of finishing with a long-drawn-out note, it ends in a confused jumble of short notes, as if the fabric of sound the humble songster was trying to build up had suddenly fallen clattering about his ears! Nothing daunted, he pauses for a moment and begins again; and the traveller may tramp all day along a hot and dusty lowland road, and scarcely ever be out of earshot of at least one Bunting patiently persisting in his endeavour to produce a proper song. First we think that ages may reward the Bunting's patience, for, although we see no improvement, the march of evolution is always too slow for us to gauge its passage. But, again, we surmise that perhaps no higher form of song is being aimed at; that this apparent musical failure may represent perfection judged by the standard of the songster and his mate, for the Bunting sings not for our pleasure, but to express his own overflowing vitality, whether or not that be for the time directed into the channel of some particular 'emotion.'

In a situation such as we have already indicated, the Bunting makes a loose cup of dry grass, roots, and the like, and lines it with hair. Late in May the four or five eggs are laid in this nest. They are white in ground-colour, with a faint purple tinge, while the markings are of dark purple. The markings may be blotches or long, narrow streaks. The latter are typical of the eggs of Buntings in general, and have earned for the birds many popular names, such as 'Scribbling Larks.'

The Corn-Bunting is a rather coarsely built bird, and the undulating flight is 'heavy' in appearance. The sexes are alike in plumage. The name 'Common Bunting,' sometimes used in books, is not very appropriate, owing to the abundance of the next species.

THE YELLOW-HAMMER, OR YELLOW-BUNTING

(Emberiza citrinella).

Plate 88.

A much handsomer bird than the Corn-Bunting is the Yellow-Hammer. It is a rather smaller bird, of lighter and more graceful build, and has in addition the distinctive bright plumage which makes it such a well-known species. Even the female shows much brighter colour than the Corn-Bunting, and the male is resplendent in yellow and chestnut. Immature birds, however, are much duller in hue.

The name 'Yellow-Bunting' is little more than a book-name, for the species is popularly known as the 'Yellow-Hammer'; the word 'hammer' being, however, merely a corruption of the German *ammer — Anglicè*, 'bunting.' 'Yellow-Yite' is a widespread popular name.

The Yellow-Hammer is abundant in all suitable parts of the British Isles, and its haunts are similar to those of the Corn-Bunting. Even in some of the outlying Scottish isles it is found, but not in the Shetland group except as a winter visitor. Like the Corn-Bunting, it is something of a migrant, although more or less resident as a species throughout our area. In winter it becomes gregarious.

The song has already been mentioned as being a rather higher form than that of the Corn-Bunting, but of similar type. It consists of a series of rapidly uttered hard notes, terminated by a long-drawn-out 'wheeze.' This note is very characteristic, and the only bird-sound at all like it is the call-note of the Green-

Plate 88.

YELLOW-HAMMER OR YELLOW-BUNTING—*Emberi'za citrinel'la.*

Length, 6·5 in.; wing, 3·35 in.

[PAS'SERES: Fringil'lidæ; Emberizi'næ.]

finch; the two cannot be confused by any one who has given them the slightest attention. A popular rendering of the song is: 'Little-bit-of-bread-and-no-cheese.' It might, of course, be just as well syllabled in a dozen other ways; but such renderings are of no value except as aids to the memory; to convey an idea of the song to a reader who by any chance did not know it they are totally insufficient. The song is uttered persistently from telegraph-wires, prominent sprays of furze, wall-tops, posts, or other perches, as opportunity offers. It is most frequently heard in early summer, but also under favourable weather conditions at almost any time except during a few weeks in late summer and early autumn.

The nest of the Yellow-Hammer resembles that of the Corn-Bunting, and it is usually similarly placed, but is sometimes in a bush or low tree several feet from the ground. The Yellow-Hammer's four or five eggs show the characteristic scribblings, but are rather variable in colour. Nesting begins earlier than in the case of the other, the first eggs being laid about mid-April, and two or more broods are produced in a season. Both parents take part in incubation, which lasts for a fortnight.

THE CIRL-BUNTING

(Emberiza cirlus).

Plate 89.

Little need be said about the Cirl-Bunting, for, although it is a common British resident species, its range as such is very restricted. It is found nesting only in the southern counties of England and Wales, and does not penetrate into the central Midlands. North

of its breeding range it occurs accidentally with decreasing frequency, terminating with an isolated record from Aberdeenshire. From Ireland it has not been recorded. There is, however, some ground for believing that the limits of the range of the species in England and Wales are being extended; but one must take into account the fact that the earlier history of the bird is rather obscure. The male is quite a brightly coloured bird, and the species is by no means a shy one; yet for some reason it seems to attract little attention, and it is often entirely overlooked. The female is a much duller bird than her mate, and lacks the black-and-yellow pattern on the head that renders him so unmistakable. Immature birds are still duller.

In many ways the Cirl-Bunting resembles the Yellow-Hammer, both in appearance and habits. The song of the Cirl is of the simple Bunting type—merely a series of short notes, followed in this case by no special ending.

The nesting habits closely resemble those of the Yellow-Hammer. Moss is a more typical constituent of the nest, and the eggs tend to have more blotches and fewer 'scribblings.' The four or five eggs are not laid till May as a rule, and a second clutch is deposited in July.

THE REED-BUNTING

(Emberiza schœniclus).

Plate 90.

A slightly different type of Bunting, but still very close to that already described, is represented by this species. In general form and method of flight it betrays the usual characteristics; but the plumage of the cock is to some

Plate 89.

CIRL-BUNTING -*Emberi'za cirl'us.*

Length, 6·5 in. ; wing, 3·25 in.

[PAS'SERES : Fringil'lidæ ; Emberizi'næ.]

extent suggestive of other groups, and has earned for the bird the popular title of 'Reed-Sparrow.' The hen is much duller, and has less black about the head regions. Similar to the female, but even duller, are the immature birds of both sexes.

In habits, too, the Reed-Buntings differ more markedly from the previous three species than do those among themselves. The differences, however, are for the most part consequences of the different nature of the haunts selected by this bird. These are usually in the vicinity of streams with banks overgrown with willows, alders, and various shrubs, and with courses choked by beds of sedge; they are also found in swamps, marshes, damp moorlands, and similar places. Where such haunts are to be found, the Reed-Bunting is a common resident bird over almost the whole of the British Isles. In winter it becomes to some extent gregarious, and often shifts its ground to other types of country in search of food. Considerable autumnal immigrations occasionally occur.

The nest is built of reed-flags, dry grass, and moss, with a lining of reed-tops, hair, or other more delicate material. It is usually placed on the ground among reeds or coarse herbage or near the roots of the waterside shrubs and willow-trees, but it may be raised some distance from ground in a reed-bed or even in a small tree. The four to six eggs are handsomely marked with deep-purple blotches and streaks on a ground of the same colour, but of a much paler shade. Laying begins in April, and two or more broods are reared, both parents sharing the duties and cares of the task. For song the male babbles a few loud, incoherent sounds, and ends them with a couple of hissing notes.

THE SNOW-BUNTING

(Plectrophenax nivalis).

The Snow-Bunting, often aptly termed the 'Snowflake,' is placed rather apart from the four species already discussed. The seasonal and other changes in its plumage are somewhat bewildering, but at all times the proportion of white, especially noticeable in flight, renders identification easy. Flocks of these birds are to be met with in winter over a great part of the British Isles; but in summer only a very few pairs remain to nest in the Cairngorms and other mountains of Scotland. There is distinct evidence of their increase in these regions. There they nest on stony mountain-sides, but farther north they fix their abode among boulders or driftwood at sea-level. The four to six grayish-white eggs are spotted with brownish red and purplish black.

FAMILY, HIRUNDINIDÆ (SWALLOWS).

THE SWALLOW

(Hirundo rustica).

Plate 91.

In poem, proverb, and popular imagination, no bird is so closely associated with the idea of summer as the Swallow. Its abundance, its preference for the haunts of man, the conspicuous gracefulness of its flight, and the readiness with which it may be distinguished from almost all other birds by even the most casual observer, combine

Plate 90.

REED-BUNTING—*Emberi'za schœ'niclus.*

Length, 6 in.; wing, 3·1 in.

[PAS'SERES: Fringil'lidæ; Emberizi'næ.]

to make it familiar to all, and its seasonal appearances and disappearances a matter of common knowledge.

No description of the Swallow's plumage is necessary, but it may be well to mention its song. The familiar twitter is not its only note, for it has a short and simple but pleasing song, usually uttered when the bird is perched beside its nest, and not audible at any great distance.

Examples may appear in the south of England early in March, and numbers by the third week; but two or three weeks later may be taken as the date of the chief influx. In the north of Scotland the Swallow is found only in small numbers till the first few days of May, and in the extreme north and the outlying islands it is at no time abundant. A steady decrease in numbers continues from early September to the middle of October; but a few frequently remain much longer, and individuals have been known to survive a mild winter.

Caves, although probably the original nesting-places of the Swallow, are seldom resorted to now. The rafters of farm buildings are favourite nesting-sites, and its preference for the wide chimneys of old-fashioned houses has earned for it the name 'Chimney-Swallow.' Numerous curious nesting-sites are on record: a forked branch, a hanging glass lamp-shade, and the wings and body of a dead and dry Owl that happened to hang from a rafter in a barn.

The nest is composed of mud strengthened with pieces of straw. The shape varies according to the exigencies of the site, but is normally 'like half a deep dish.' Although support may often be utilised, it does not appear to be essential, as nests may be found against smooth and vertical surfaces. A lining of small feathers and soft grass is added. On this the four to six eggs—white, speckled with gray and reddish brown—are laid.

Laying begins about the middle of May in the south, and in less than six weeks the young Swallows leave the nest. They do not differ very markedly from their parents, but they lack the long outer tail-feathers. They still depend on their parents for food, and there are few prettier sights than a Swallow feeding its young on the wing. At first the young one remains perched on a leafless branch or a telegraph-wire, but later the young birds rise to meet the old ones, and the mouthful is transferred in mid-air.

The parent birds soon set about rearing a second brood, and a marked pair has been known to rear a third. These third broods usually fare badly, however; either insects become too scarce, or the migration instinct overpowers all others, and the old birds leave the young to their fate, and join the noisy gatherings on the telegraph-wires or in the reed-beds, preparatory to migrating.

As regards its food the Swallow is entirely insectivorous. Sometimes it has to alight on the ground, at others it hovers above a head of ragwort while it picks out the insects; but usually it catches its prey on the wing, and for this purpose its short but comparatively broad bill and its wide 'gape' are well adapted. The gnats and other insects found dancing over the water form an abundant store of food for the Swallow, and it is a familiar sight to see it skimming across the surface, sometimes sipping the water in its flight, or even momentarily plunging in.

For a short time after their arrival in spring, and for a longer period in autumn, those Swallows whose nesting-places are not in the neighbourhood of water betake themselves to the nearest river or lake:

> And as the Swallows crowd the bulrush-beds
> Of some clear river issuing from a lake

Plate 91.

SWALLOW—*Hirun'do rus'tica.*

Length, 7·5 in. ; wing, 4·9 in.

[PAS'SERES : Hirundin'idæ.]

On autumn days, before they cross the sea,
And to each bulrush-crest a Swallow hangs
Quivering, and others skim the river stream,
And their quick twittering fills the banks and shores.

It was probably the habit of congregating in the neighbourhood of water in autumn and spring that gave rise to the superstition that Swallows spend the winter under water.

Not so easily to be dismissed is the theory that Swallows hibernate in holes. We cannot positively disprove the existence in birds of a hibernating habit such as exists both among mammals and reptiles, but in view of its extreme improbability we need not seriously consider the matter unless more substantial evidence is produced. The evidence there is may easily be explained away.

Gilbert White was fully aware that Swallows migrated, but he stoutly upheld his belief that a small number hibernated. He could not believe that the young birds of late broods were able to undertake the southward journey when only a few weeks old. But we have no reason to doubt that they at least attempt the journey. Moreover, a young Swallow leaves the nest practically full-grown and well able to fly, and a few weeks' practice must make it almost as strong on the wing as an adult.

There are numerous records of 'Swallows' being found in holes in a torpid state, and reviving on being warmed. A 'laggard' Swallow surprised by wintry weather might conceivably—more especially if it were really a Sand-Martin—have taken shelter in a hole and become comatose from starvation; but there is no reason to suppose that it would have survived for any length of time if it had not been rescued.

The reappearance of summer visitors — especially of House-Martins—in mild weather in late autumn was one of the points which influenced Gilbert White; but 'these birds are almost certainly strangers, and not natives of the locality in which they are seen.'

Gilbert White also noted that early Swallows 'retired' on the reappearance of wintry weather in spring, and 'came out' again when spring weather had permanently set in. Is it not more reasonable to suppose that these early examples perished, and that others took their places later?

To touch on another point: we hear of a Roman knight who had the news of the chariot races at Rome carried to his friends at his country house one hundred and thirty miles away by liberating Swallows brought from there and dyed the colour of the winner. Recently Swallows have been experimentally used as 'homers' in France, and one bird is reported to have maintained an average pace of one hundred and six miles an hour for one hundred and sixty miles.

THE MARTIN

(Chelidon urbica).

Plate 92.

Like the Martlet
Builds in the weather on the outward wall.

The Martin—the Martlet of Heraldry and of older writers, frequently called the House-Martin to avoid confusion with the Sand-Martin—can be readily distinguished from its ally the Swallow by the absence of the long tail-feathers, and by the greater proportion of white in its plumage: the throat and entire under-parts are of

Plate 92.

MARTIN—*Chel'idon ur'bica.*

Length, 5·3 in.; wing, 4·25 in.

[PAS'SERES: Hirundin'idæ.]

this colour, and a white patch on the rump is noticeable at all times, but is especially conspicuous when the bird is clinging to a house-wall, collecting mud at a roadside puddle, or flying below the observer.

It arrives in Britain about a week after the Swallow, early in April in the south, but three or four weeks later in the north. Although becoming scarcer in Ireland and in the north of Scotland, it is found over the greater part of the British Isles until the middle of September. About this time it disappears from the more northern districts, but is found for a full month longer in the south of England. After some weeks in which it is rarely seen, it not infrequently reappears in some numbers for a short time in November, while individuals are occasionally seen in December. This fact had by no means escaped the observation of Gilbert White; and, as we have seen, it greatly influenced his beliefs with regard to hibernation. Little is known about its migrations and winter quarters.

Like the Swallow's, the nest is made of mud strengthened by being mixed with pieces of straw or hair. But while the nest of the Swallow is a mere half-cup entirely open at the top, the Martin's roughly takes the shape of a bowl placed with its open side against a perpendicular wall of rock or the side of a building, and with a small hole near the top as the only opening.

The most familiar situation for the nest is the wall of a house or shed, just under the shelter of the eaves. Bridges, also, are often used as nesting-sites. In many coastal districts, however, the Martin is best known as a cliff-bird, placing its nest against the cliff-face under the shelter of an overhanging rock.

In May the Martins begin their nesting preparations.

Where a sheltered site has been chosen, the same nest may last for years and be used over and over again. In such cases only a few repairs are needed, but often a new nest has to be built, and this takes nearly a fortnight, a layer about half an inch thick being added each morning, and left to dry and harden for the rest of the day.

Clinging to the roughness of the wall or rock, and leaning part of its weight on its tail, the bird doubtless uses in most cases some irregularity of the surface on which to establish the foundations of its nest. But that such a support is not absolutely necessary is shown by a recent remarkable case of a Martin which built its nest against a vertical pane of smooth glass. What keeps the nest in position in such cases baffles explanation. It has been suggested that the Swallow and the Martin may employ some salivary fluid like that of the Edible Swiftlets of the East, but the necessary glands have not been proved to exist.

After the outer shell of the nest has been completed, it is a familiar sight to see the Martin catching flying feathers. These, with pieces of straw, form the lining on which the four or five eggs—pure white, not spotted like the Swallow's—are deposited. The eggs are laid at the rate of one a day, and are then incubated for a fortnight. The young are at first blind, helpless, and practically naked; but when they leave the nest three weeks later—almost full-grown, and stronger on the wing than most nestlings—they have a plumage resembling that of their parents, but lustreless brown instead of glossy black, and altogether duller.

In July a second clutch is laid, and the finding of young still in the nest in October may be taken as evidence that the Martin sometimes has three broods in a season.

Plate 93.

SAND-MARTIN—*Cot'ile ripa'ria.*

Length, 4·8 in.; wing, 4 in.

[PAS'SERES: Hirundin'idæ.]

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The Martin, however, is not always allowed to carry out its nesting operations in peace. Although the list of its enemies is comparatively short, one of them—namely, the House-Sparrow—is formidable in its numbers. The Sparrow's particular crime in this case is that it takes forcible possession of the Martin's newly built nest, and, lining it to suit its own taste, uses it for its own eggs and young.

The Martin is but ill-adapted to fight the strong-billed bully, and the result is nearly always the same; the useful insectivorous bird is ejected from its rightful nest by the bird which is now becoming more and more of a plague to the farmer and the gardener. Repeated instances of whole colonies of Martins having been thus ousted by Sparrows are on record. But the House-Martin seems to be at all times somewhat capricious in its choice of nesting-sites, and given to abandoning chosen haunts without obvious reason, and it remains to be shown to what extent its persecution by the Sparrow has affected the number nesting annually in our islands.

THE SAND-MARTIN

(Cotile riparia).

Plate 93.

For a number of reasons the Sand-Martin is the least familiar of the three Swallows; it is less numerous, its haunts are usually remote from those of men, and owing to its smaller size and its mouse-coloured plumage it is altogether a less noticeable bird. The jerky flight of this species may also be distinguished from the graceful flight of the Swallow and the heavier flight of

the House-Martin. It is also the least noisy of the three.

The Sand-Martin is remarkable for its extremely wide distribution, and in this country it is found in nearly every part, even to the northern islands. Its dependence on suitable nesting-places, however, makes it rather 'local.' Many so-called 'early Swallows' probably belong to this species, as it is on the whole slightly earlier in its arrival than the Swallow and the House-Martin. It is also earlier and more regular in its autumn departure.

The nest is a very slight affair of grass and feathers, but is placed in a chamber at the end of a gallery bored in a sandy bank. Railway-cuttings, sand-pits, and quarries are frequently used; but water is a great attraction, and steep river-banks are favourite places. At the coast, crumbling cliffs and even dunes of loose sand are burrowed into. Crevices in ruins or rocks are sometimes used.

The tunnel usually slopes slightly upwards, for drainage purposes, and, where many stones have to be avoided, it may twist about considerably. The length varies with the hardness of the soil. In a hard, gravelly bank it may be only eighteen inches long, but three feet is more normal, and nine-foot burrows are on record.

The four to six eggs are pure white. Two broods are usually reared.

The Sand-Martin seems to be ill-adapted for tunnelling, but nevertheless appears to take no excessive time over the business. Like the House-Martin, it is liable to be dispossessed by the Sparrow; but luckily it is very gregarious, and in large colonies can defy the intruder.

Gilbert White remarked that, even when undisturbed, the Sand-Martin had to give up a burrow after a few years' tenancy, owing to the foul and flea-infested state it got

Plate 94.

SPOTTED FLY-CATCHER—*Muscic'apa gris'o'a.*

Length, 5·8 in. ; wing, 3·3 in.

[PAS'SERES : Muscicap'idæ.]

into. Sand-Martins seem to be even more vigorously attacked by these parasites—which belong to a distinct species—than the other Swallows. That they seldom wash or even take a dust-bath may have something to do with it.

FAMILY, MUSCICAPIDÆ (FLY-CATCHERS).

THE SPOTTED FLY-CATCHER

(Muscicapa grisola).

Plate 94.

The Fly-catchers are not an important group so far as the British Isles are concerned; but the present species is common and widespread, nesting in suitable localities—even in some of the London parks—throughout almost the whole area except the extreme north of Scotland, towards which it becomes gradually scarcer. The name 'Fly-catcher' well describes the habits of this bird and its allies. Insects form almost the whole food, and are, as a rule, taken on the wing. Sustained pursuit forms no part of the bird's methods, however. The Fly-catcher perches on some point of vantage and remains still for a time. But as insects begin to come unsuspectingly around, it makes occasional rushes, usually succeeding in catching a victim, and returns to its post to await another opportunity.

In autumn, it is true, the Fly-catcher may take berries, but it is saved any long continuance of non-insectivorous fare by its migratory habits. It is only a summer visitor to our islands, not usually arriving even in the south before the beginning of May, and quitting our shores in September.

Nest-building is undertaken soon after the birds' arrival, for incubation generally begins in the second half of May in the south. Some crevice in a wall or tree may shelter the nest, or it may be placed on a roof-beam of a veranda or outhouse, or among hanging creepers. The nest itself is a tidy and inconspicuous structure of moss, lichens, pieces of bark, and the like, with a comfortable lining of feathers, wool, and hair. The four to six eggs are bluish or greenish white, and the rusty markings take the form of cloudings. The cock feeds his sitting mate, but does not appear to share in the incubation. Two broods are often reared.

The song of this species is very weak, but the abrupt call-note is more noticeable.

THE PIED FLY-CATCHER

(Muscicapa atricapilla).

The Pied Fly-catcher is also a summer visitor, but in much smaller numbers than its congener. It breeds only very locally in England and Wales, principally in the north and west. In Scotland it is even more scarce and local, but has been known to breed as far north as Inverness-shire. To Ireland it is only a rare wanderer. The name indicates the chief difference between the plumage of the two species, but the young of the Pied Fly-catcher are also spotted. The white on the wing and forehead of the adult male make it unmistakable. The nest of dry grass and roots is lined with hair. It is usually in a hole in a tree, less often in a crevice in a wall. The six to nine eggs are pale blue, sometimes with a few reddish specks.

Plate 95.

RED-BACKED SHRIKE—*La'nius collu'rio.*

Length, 7 in. ; wing, 3·7 in.

[PAS'SERES : Lani'idæ.]

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FAMILY, LANIIDÆ (SHRIKES).

THE RED-BACKED SHRIKE

(Lanius collurio).

Plate 95.

This species is the common British member of a group otherwise poorly represented in our islands. Even the Red-backed Shrike, however, is only found regularly in a limited portion of our area, being but a rare wanderer to Ireland and the north of Scotland, and an uncommon nester in the south of Scotland and the north and east of England. In Wales and the southern and midland counties of England it nests locally, but in fair numbers. It is a summer visitor, arriving at the beginning of May, and generally leaving in August.

'Butcher-Bird' is another name for this and other Shrikes, and refers to their predatory habits. This species takes large insects and lizards regularly, as well as mice and occasional small birds. Some of the larger species, such as the Great Gray Shrike, which occurs in these islands as a migrant, are much more predatory, regularly carrying off birds up to the size of a Robin. All have the habit of impaling their food on the thorns of some bush which serves them as a 'larder.' The Shrikes possess strong, hooked beaks, and have the habit of disgorging 'pellets' of indigestible food. Somehow we should rather expect the Shrikes to resemble those other partly predaceous Passeres, the Crows, in having no song. But this is not so; for, incongruous as it may seem, the male of this species is a sweet songster and a proficient mimic. The ordinary notes, however, are harsh and discordant.

The nest is usually placed several feet from the ground, in a hedge or tall, strong bush. It is a large affair of roots, stems, and moss, lined with wool, hair, and sometimes bent-grass. The eggs are from four to six in number, and vary very much in colour. The ground-colour is usually very light; the tint may be yellow, green, or pink. The markings are cloudings or zonings of a bluish-gray or reddish hue. The eggs of a clutch are normally of one type. The species is single-brooded.

[Of the three other Shrikes on the 'British List,' the Woodchat is suspected of having bred in the Isle of Wight. It is, however, not the next commonest as a migrant.]

FAMILY, MOTACILLIDÆ (WAGTAILS AND PIPITS).

THE PIED WAGTAIL

(Motacilla lugubris).

Plate 96.

In almost every part of the British Isles where there are damp meadows and running streams we are likely to find the Pied Wagtail. Of such haunts it is always a characteristic and conspicuous inhabitant, running about at the water's edge, perching momentarily on a projecting stone, or flying across the stream with a loud, harsh 'chissick.' About all these actions some remark may be made. The members of this family are among the smallest of our native birds that habitually walk or run. With the exception of the Wagtails and the Pipits, the Larks, the Starling, and the Crows, most of the British Passeres generally proceed, when on the ground, by means of a series of hops, both feet performing the same movements simultaneously. When stopping for an instant in

Plate 96.

PIED WAGTAIL—*Motacil'la lu'gubris.*

Length, 7·3 in.; wing, 3·5 in.

[PAS'SERES: Motacil'lidæ.]

their running, or when perching on some prominent point, the Wagtails one and all keep up a continuous up-and-down movement of the tail. In the Common Sandpiper similar but less pronounced actions may be noted, and the Redstarts frequently display rapid sideways movements of the tail. But in none is the habit so marked and so continuous as in the case of the Wagtails, which, indeed, take their name from it. No very satisfactory explanation exists as to the origin and reason of the habit. As regards the flight of this and other Wagtails, it need only be said that it is of an extraordinary 'switchback' nature, consisting of short but steep rises and falls in quick alternation. In addition to the characteristic call-note there is also a brief but pleasing song. The food consists mainly of insects and various small aquatic creatures.

In winter the Pied Wagtail forsakes some of the more northern and elevated regions of the British Isles, and decreases over most of the remainder. Some of the movements are of quite a local character, but there is a distinct southward tendency, and the bird thus becomes more numerous in winter than in summer in the extreme south. Even from that part of the country there is, however, a considerable amount of transmarine emigration in autumn. In the return journey in spring it has been established that the males arrive some days before the females. This is probably the case with the majority of our migrants, and the order is believed to be reversed in autumn, except that young birds of both sexes usually depart long before any of the adults.

Hair and feathers form the lining of the nest of dry grass, moss, and the like. The whole is occasionally placed in the open meadow, but generally in a sheltered situation on a bank. Sometimes it may be in a crevice in a wall or rock, or on a thatched roof or a tree-stump. The

four to six eggs are thickly speckled with ash brown on a grayish-white ground. Two broods are often reared.

'Water Wagtail' is the most widely used of the numerous popular names.

THE WHITE WAGTAIL

(Motacilla alba).

The White Wagtail has much more white and gray about the plumage, but is obviously a close ally of the Pied Wagtail. It may, indeed, be regarded as the continental representative of that bird, and the two are often classed as mere races of a single species. The White Wagtail is principally known as a migrant to the coasts of England and Wales. A limited number nest in the southern and eastern portions of the country, and interbreeding with the Pied Wagtail is known to occur. In Scotland and Ireland the White Wagtail is less often recorded, but it has recently nested on Fair Isle (Shetland). The nesting habits and eggs are similar to those of the Pied Wagtail.

THE GRAY WAGTAIL

(Motacilla melanope).

Plate 97.

Far less common and much less conspicuous than the Pied Wagtail, but also more beautiful, is the Gray Wagtail. The shape is slender and graceful in the highest degree, the continuously moving tail is very long, and the colour scheme of the plumage is most delicate and pleasing. A considerable proportion of saffron is displayed on the under-parts, a fact which must be noted

Plate 97.

GRAY WAGTAIL—*Motacil'læ melano'pe.*

Length, 7·5 in.; wing, 3·3 in

[PAS'SERES: Motacil'lidæ.]

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by the novice, who might otherwise confuse this bird with the true Yellow Wagtail. A bold, diamond-shaped shield of black on throat and breast distinguishes the adult male in summer, but in autumn and winter this part of the plumage is light-coloured in birds of both sexes.

To practically our whole area the Gray Wagtail is known at least as a migrant; but as a resident, nesting species it is more restricted in distribution, and rather local everywhere. The banks and islets of running streams, usually in hilly, mountainous districts, are the chosen haunts. Over much of the west and north of England and Wales, over almost the whole of Scotland, except the extreme north and the isles, and throughout Ireland, the Gray Wagtail may be found in suitable places. In the eastern, southern, and midland districts of England it is scarce as a nester.

In the main this Wagtail resembles in habits the more familiar species already discussed. It is more often seen perching on trees, perhaps; but its choice of a nesting-site is much the same—some hollow or crevice in the bank, whether soft or rocky, or in a wall, or it may be low down among thick shrub-stems. The nest itself is made entirely of soft and fine materials, grass, roots, and moss, with hair for the lining. The eggs, five in number as a rule, are grayish white, indefinitely clouded with pale brownish gray, and occasionally bearing a few dark, narrow lines near the larger end. Laying takes place in April, and both parents incubate. Two broods are often reared in a season.

The Gray Wagtail may be considered as intermediate between the Pied and White Wagtail group and the Yellow Wagtails. It will be seen, however, that in the system of nomenclature followed in our chapter-headings these minor groups do not receive generic rank.

THE YELLOW WAGTAIL

(Motacilla raii).

Plate 98.

We come now to the representative of a group of Wagtails distinguished, among other details, by the predominance of yellow in their plumage. This feature is sufficient to mark off these birds from any other British Wagtails, but the differentiation of the various species or races of Yellow Wagtails is a matter of great difficulty. In fact, the field-naturalist may well be pardoned for giving up the attempt as hopeless at present, when we consider that even scientists, working with specimens in the hand, are not yet by any means agreed on the various points, and have the whole subject of the classification and nomenclature of these birds under consideration.

Only one Yellow Wagtail is a common British breeding bird, and that is the one which received the name in the days before further observations had revealed the complexities and difficulties of the subject. In virtue of its position as type, it may, however, still be called the Yellow Wagtail.

The Yellow Wagtail, then, is a summer visitor to the greater part of England, the southern half of Scotland, and a few localities towards the north-west of Ireland. To Wales, the south-west of England, and the east of Ireland it is only a migrant, and elsewhere it is rare. Our breeding birds appear to arrive chiefly in April, and by the south-eastern corner of Great Britain. The autumn emigration occurs in August and September.

The banks of streams are not much favoured by this bird, damp meadows being the typical haunts; and

Plate 98.

YELLOW WAGTAIL—*Motacil'la rai'.*

Length, 6·25 in.; wing, 3·15 in.

[PAS'SERES: Motacil'lidæ.]

there they may often be seen hunting for the insects disturbed by the grazing cattle, near which the birds generally keep. The nest may be in some sheltered hollow or among long herbage. Grass and moss outside, hair, feathers, and roots inside, are the chief materials, but considerable variety is displayed. The four to six eggs are not very different from those of the preceding species. Two broods are sometimes reared.

THE BLUE-HEADED WAGTAIL

(Motacilla flava).

The Blue-headed Wagtail is another member of the group which has long been recognised as distinct, the bluish head being fairly noticeable in full-plumaged birds. Otherwise it strongly resembles the typical Yellow Wagtail, and its habits and eggs are similar. Owing to confusion with that bird, full details about the Blue-headed Wagtail's distribution are still wanting; but it appears to be chiefly an April and August migrant to the east coast of Scotland and all the shores of England and Wales. It nests in small numbers in the south-east of England, and has done so in Durham and probably in Aberdeenshire.

THE MEADOW-PIPIT, OR TITLARK

(Anthus pratensis).

Plate 99.

The Pipits form a second group of the Wagtail family, and resemble their congeners in many ways. They are ground-nesters, largely insectivorous in diet, inhabitants of open waste lands, and songsters of at least moderate

proficiency. They do not hop, but run like Wagtails; and the flight is also very undulating, although not to the same extent as the Wagtail's. The plumage is characterised by similar brown tints.

This sober plumage renders the Pipits rather inconspicuous birds, but their abundance makes them tolerably familiar to all who have had occasion to visit any of their numerous haunts. Of the three which call for description, the Meadow-Pipit is certainly the best known. Such local names as 'Ling-bird' and 'Moss-cheeper' are also in use, but the popular name 'Titlark' is perhaps the most frequently employed. This name probably signifies 'a bird like a Lark, but smaller in size'; and there is much truth in the statement. The two birds may be compared side by side in most of their haunts.

Many Meadow-Pipits leave us for the winter, but on the lower grounds the species is practically resident, the elevated moorlands being frequented only in summer. With the return of spring the Titlark chooses a nesting-site. This is usually a small hollow in the ground, well concealed by bent-grass, heather, or other herbage. Dry grass is the chief material employed, and the structure is comfortable but not elaborate. The four to six eggs have a ground-colour varying from greenish gray to pinkish gray, but this is almost entirely concealed by the heavy cloudings of rich brown. As in some Wagtails, a few black hair-lines may be present near the larger end. As in all the Passeres, the young are born helpless and almost naked, and remain in the nest till full-fledged, notwithstanding the strictly ground-nesting habits of the species. The same remark applies to the whole of this family, and to the Larks and others.

That Birds are related to Reptiles is now universally admitted, and it would therefore seem only logical to

Plate 99.

MEADOW-PIPIT OR TITLARK—*An'thus praten'sis.*

Length, 5·75 in.; wing, 3·1 in.

[PAS'SERES: Motacil'lidæ.]

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suppose that the earliest birds lived and nested on the ground, and that our present-day Game-birds, already described, are perhaps the most 'generalised,' and the nearest to the ancestral forms. But in the embryos of these very Game-birds we find claws on the 'fingers' of the wing, which remind us of those used by the young of that curious South American bird, the Hoatzin, in crawling about the trees. The Hoatzin is noteworthy in being a tree-nester, with active nidifugous young. The oldest fossil bird known, the Archæoptervx, also possesses such claws. From these and other facts some have supposed that arboreal habits are really of very great antiquity—that, in fact, birds were evolved from tree-jumping reptiles. The birds that remained in the trees gradually came to have nidicolous nestlings, for nidifugous young would be subject to great mortality in an aerial abode. Before this occurred, however, the Game-birds and others came down, and they have retained the active nidifugous nestlings, which are at no disadvantage on the ground. Pipits and others, however, have come down at a comparatively recent date, after the transformation from nidifugous to nidicolous young had been effected.

Such, at any rate, is the theory, and it is certainly a very good one. Whether it stand or fall, or how it must be modified, is a matter for further research and thought, for the subject has been grievously neglected. In this book, dealing primarily with birds' nests, eggs, and young, we have tried to emphasise the importance of the too long neglected study of young birds. We believe in, and would have others believe in, the importance of the questions concerning nestlings. This will surely be conceded: that these questions are wrapped up with the most far-reaching problems of the origin and history of bird-life, which we can now study only from the records written

in the rocks, and from the even more important relics preserved in the bodies of the living birds, especially the young birds, of to-day. Thus only can we hope ever to fathom some of the mysteries of the dim past.

THE TREE-PIPIT

(Anthus trivialis).

Plate 100.

The name of this species indicates that it is an arboreal bird. It is not, however, very markedly arboreal except in comparison with its allies. It perches in trees habitually, and often sings from their branches and other prominent situations. But it is a ground-nesting bird like the other members of the family.

The Tree-Pipit has perhaps the best right to be considered as the type of its genus; but we have followed our usual custom in giving priority to the wider spread and more generally familiar Meadow-Pipit. For the Tree-Pipit has a much more restricted British range. For one thing, it is another of those species which are absent from the Irish avifauna, although common in Great Britain; there is not a single reliable record of the Tree-Pipit occurring in Ireland, even as a mere wanderer. From the Scottish isles the species is also absent, except as an uncommon migrant, and it is very scarce and local on the northern part of the mainland. But from central Scotland southwards it is common in the wooded districts of Great Britain during the summer months. For it is only a summer visitor to our area; mid-April and September are the times of the chief migrations.

As already stated, the Tree-Pipit nests on the ground.

Plate 100.

TREE-PIPIT—*An'thus trivia'lis.*

Length, 6 in.; wing, 3·3 in.

[PAS'SERES: Motacil'lidæ.]

Plate 101.

ROCK-PIPIT—*An'thus obscu'rus.*

Length, 6·25 in.; wing, 3·5 in.

[PAS'SERES: Motacil'lidæ.]

The nest is usually in a natural hollow, either on the level or in the side of a bank. It is made of grass and moss, with a lining of finer materials, sometimes including horse-hair. The four to six eggs are often like those of the Meadow-Pipit, but vary greatly, although not within a single clutch. The general effect varies from grayish white to reddish brown. Some of the types may readily be confused with the eggs of many other allied and unallied species. Laying does not begin till late in May, and only one brood is reared. Incubation, lasting a fortnight, devolves entirely on the hen.

The powers of song are better developed in this bird than in most of the family. Although sometimes singing from a perch, the Tree-Pipit more often sings in the air; and the way in which it descends to the ground or to a perch, with upturned tail, rapidly working wings, and exuberant song, is exceedingly characteristic.

THE ROCK-PIPIT

(Anthus obscurus).

Plate 101.

The open country, the woodlands, and the shore each have their Pipit, and it is the Rock-Pipit which frequents the last-named haunt. It resembles its allies, but is darker in plumage on the whole. Its habits are similar, but it has added small marine animals to its diet and a harsh, Chat-like note to its vocabulary.

The Rock-Pipit is a regular spring and autumn migrant —examples of the Scandinavian race being frequent along our eastern seaboard—but it is also a resident within our area, and is found on every part of the British coasts.

Only the more rocky stretches, however, are frequented during the nesting season.

The nest is usually very well concealed in some inconspicuous crevice of the rocks; it is similar in structure and materials to those of the other Pipits, and is built by both birds. The eggs are four or five in number, rarely six. They are variable in colour, showing from gray to brown or even red in general effect. The markings are, as a rule, the usual almost continuous clouds of minute specks, but caps and zones may occur. Two broods are reared in a season, the first set of eggs being laid about the end of April.

[The Tawny Pipit, an uncommon migrant, has probably nested in Sussex.]

FAMILY, CERTHIIDÆ (CREEPERS).

THE TREE-CREEPER

(Certhia familiaris).

Plate 102.

Far more common than is generally supposed, this unobtrusive little bird immediately rivets the attention once drawn to it. For it is peculiar in many ways, and is striking in giving one the impression of being more mouse-like than bird-like—a mere suggestion, of course, not a real resemblance. In its movements the Creeper is characteristic, and amply justifies its name. Seeds and grain are sometimes eaten, but insects form the bulk of the food. In pursuit of these it diligently searches the bark of trees, ascending in a spiral course, usually in short dashes made by quick, jerky movements. On reaching the top of one

Plate 102.

TREE-CREEPER—*Cer'thia familia'ris.*

Length, 4·75 in. ; wing, 2·5 in.

[PAS'SERES : Certhi'idæ.]

tree, it flies down to the foot of another, and so begins again. For this method of feeding the Creeper is well adapted in many ways—the strong, curved claws for locomotion; the long, stiff tail for resting on; and the slender beak for picking out the little insects from the crevices of the bark. Meanwhile the Creeper is protected from its would-be enemies by its coloration. The beautifully pencilled brown of the upper-parts is scarcely visible against the dark tree-trunk, and the light under-parts are rarely exposed to view.

In all the wooded regions of the British Isles the Tree-Creeper is a fairly common resident. To some of the other parts, such as the Scottish isles, it sometimes wanders, although it is nothing of a migrant. But in winter it becomes sociable, and may perform local movements in company with the roving bands of Tits and Goldcrests.

The nest is usually placed in some crevice in a tree, often between the trunk and a piece of loose bark. Similar situations, in old and roughly made buildings or elsewhere, are also made use of. Sometimes the nest is in the foundations of the nest of a Crow or Bird-of-Prey. The nest itself is made of dry grass, twigs, moss, and the like, and is lined with such materials as feathers, wool, or soft, inner birch-bark. The six to nine eggs are white in ground-colour, with brownish red or purple spots, often arranged in a zone near the larger end. The female incubates, and often has two broods in a season.

The song of the Tree-Creeper is rather shrill, but a faint piping forms the ordinary note.

FAMILY, TROGLODYTIDÆ (WRENS).

THE WREN

(Troglodytes parvulus).

Plate 103.

This tiny but familiar bird is abundantly represented throughout the British Isles at all seasons of the year. Of small size, sober colour, and generally solitary habits, it is nevertheless brought into prominence by its fearlessness and by its strong and excellent powers of song, while its characteristic shape never allows the slightest doubt as to its identity.

Although the species is resident, and our native birds are almost certainly sedentary, there is a certain amount of autumnal immigration on our eastern seaboard; but this does not appear to affect the numbers of the species except in a few coastal districts. On 'remote St Kilda' the Wren has, through its sedentary habits and the isolation of the place, diverged somewhat from the normal mainland type. Before the facts were very well known 'the St Kilda Wren' (*T. hirtensis*) was considered a distinct species; but nowadays we do not deem it worthy of such isolated rank, but prefer to call it a mere local race. The differences in plumage are not great, and the habits appear to be identical, apart from the choice of nesting-sites and other matters *directly* influenced by the nature of the environment of the island form.

Under mainland conditions the choice of nesting-sites varies very much. Sometimes a tree is chosen, more often a thick bush or hedge, and very frequently some sheltered bank, some ivy-clad, tumble-down wall, or the thatched

Plate 103.

WREN—*Troglod'ytes par'vulus.*

Length, 3·5 in.; wing, 1·9 in.

[PAS'SERES: Troglodyt'idæ.]

roof of a cottage. The nest itself is large for the size of the bird, and is completely covered over, the opening being in the side. It is made of moss and leaves, and sometimes dry grass, and may have a lining of feathers. Incomplete nests, popularly termed 'cocks' nests,' are frequently found near the real one. The eggs are marked with reddish spots, and are normally from six to eight in number; the much larger clutches sometimes recorded may be the produce of more than one hen. A single pair rears two broods in a season. The Wren is mainly insectivorous, but in winter it has to take many different kinds of food. At that season it habitually resorts to old nests and other sheltered roosting-places.

A bird at once so common and so easily recognised has naturally many popular names, such as 'Jenny Wren'; and, on the other hand, the term 'Wren' has been misapplied to other less familiar birds, through a fancied resemblance, probably more in size than in anything else. Thus the 'Golden-crested Wren,' the 'Willow-Wren,' and the 'Wood-Wren' are all strictly Warblers.

FAMILY, SITTIDÆ (NUT-HATCHES).

THE NUT-HATCH

(*Sitta cæsia*).

Plate 104.

The Nut-hatch is an inconspicuous and not very familiar little bird, which is the sole British representative of its family, but it is not very far removed from the well-known Titmice presently to be described. The Nut-hatch lives in old woodlands, and in summer subsists mainly on insects. These it searches for both on the ground and on the bark

of trees. In exploring the bark it moves sideways and up and down with the same facility as the Titmice, and with the mouse-like appearance that gives them their name. The Nut-hatch's own name ('Nut-hack') is derived from its autumn-feeding habits. At that season it eats acorns and hard seeds, but more notably hazel-nuts. One of these it fixes firmly in a crevice, and then proceeds to smash it with its strong little beak. During the process the whole body is worked from the hip-joints in a peculiar and characteristic manner.

The Nut-hatch's British range is very limited. For one thing, it is another of the many indigenous birds in Great Britain that are unknown across the Irish Sea. Attempts to introduce it into Ireland have failed. In the south-eastern and midland parts of England it is common in suitable places. In Wales and the west and north it is much more local, and it is found in only a few southern counties of Scotland.

The nest proper is a mere bed of dead leaves or pine-'needles'; but it is situated in a hole or crevice, usually in a tree, but occasionally in a wall or bank or similar situation. Sometimes the hole is too large, and it is then partly blocked with mud and pebbles. Under peculiar circumstances these materials may form what amounts to a covered-in nest. A nest in a haystack has been recorded which was made of eleven pounds of clay. Another, built in four days in a nesting-box, comprised about three pounds of mud and one thousand eight hundred and twenty pieces of silver birch-bark, the nearest birch-tree being two hundred and fifty yards distant! The five to seven eggs are well spotted with reddish brown on a white ground.

Plate 104.

NUT-HATCH—*Sitta cæsia.*

[PASSERES : Sittidæ.]

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FAMILY, PARIDÆ (TITMICE).

THE GREAT TIT

(Parus major).

Plate 105.

The Titmice, or more shortly the 'Tits,' constitute a very familiar group of our commoner native birds. Four species belonging to the typical genus are common enough to be described, and a fifth member requires mention. All of these are very similar in appearance, in nesting and general habits, in the nature of their haunts, and, in fact, in almost all respects. Now it is unusual to find closely allied birds in competition; if their lives run on the same lines their interests are bound to clash, and we find one flourishing to the exclusion of the rest. Therefore, when we have to deal with two or more nearly related species we naturally expect to find one of three things: (1) The birds occupy different areas, frequently contiguous, perhaps slightly overlapping, but not coincident; the Pied and White Wagtails, already described, are an excellent case in point. (2) The species have coincident or widely overlapping distributions, but are each confined to certain types of ground within the common general area; we have already noticed this point in connection with our three native Pipits. (3) The species inhabit the same area and the same haunts, but show divergence in their mode of life; and this is what we find in the genus *Parus* in the British Isles, feeding habits being the variable factor.

'The great Titmouse (*Parus major*),' writes Dr Alfred Russel Wallace, 'by its larger size and stronger bill is adapted to feed on larger insects, and is even said some-

times to kill small and weak birds. The smaller and weaker Coal-Titmouse (*Parus ater*) has adopted a more vegetarian diet, eating seeds as well as insects, and feeding on the ground as well as among trees. The delicate little Blue Titmouse (*Parus cæruleus*), with its very small bill, feeds on the minutest insects and grubs, which it extracts from crevices of bark and from the buds of fruit-trees. The Marsh-Titmouse, again (*Parus palustris*), has received its name from the low and marshy localities it frequents; while the Crested Titmouse (*Parus cristatus*) is a northern bird frequenting especially pine-forests, on the seeds of which trees it partially feeds.' In the last two cases there is a difference of haunts and general area respectively; but in the case of the first three the chief divergence is one of feeding habits, although the Coal-Tit is perhaps more often found in the depths of the forest than are its allies. The Long-tailed Tit belongs to another genus, and differs in a number of ways.

This case of divergence in mode of life, in the Great, Coal, and Blue Tits especially, well illustrates our point. As the famous naturalist just quoted puts it, a species which would otherwise be in severe competition with a perhaps better-equipped rival, adapts itself slightly 'to fill a vacant place in nature' where competition is less. But not only is the individual species benefited, and perhaps saved, but the maximum of life which the area can support is more nearly attained by this diversity of habit or form. It is well known that a farmer can get a larger crop of hay by sowing together a number of different grasses, clovers, and the like, than by sowing more of one or two. The general principle is the same.

The Great Tit itself is a resident and abundant species throughout all our area, except the extreme north of Scotland and the outlying isles. Its distinguishing features

Plate 105.

GREAT TIT—*Pa'rus ma'jor.*

Length, 5·75 in.; wing, 2·85 in.

[PAS'SERES: Par'idæ.]

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are its large size, the noticeable white cheek-patch completely surrounded by black, and the black stripe down the centre of the breast and under-parts. The first-named characteristic gives the species its real name, the second its popular title 'Ox-Eye.' In this, as in all the Tits we have to deal with, there is no very noteworthy difference in plumage with age, sex, or season. The most noticeable call is that heard in the spring, a monotonous alternation of two notes, sounding like slow filing. In addition to its diet of insects and an occasional tiny and feeble bird, the Great Tit eats peas and nuts in their season, and in winter will peck a piece of meat or a bone hung on a string. During the process the power which the birds of this genus have of perching in all sorts of positions may be observed to advantage, for the Tits, although always restless, show little shyness.

The Great Tit is an early nester, often beginning by the end of March. A hole in a tree or wall may be considered as the normal site, but all sorts of absurd situations — letter-boxes, flower-pots, and what not — are constantly recorded. The foundations of Crows' nests are also used at times. The nest is chiefly of moss, but thickly lined with hair, feathers, and the like. The eggs may be a dozen in number, and are white, with light-red specks. Both parents are very diligent in feeding their numerous progeny, and two broods are reared before the summer is over.

It has recently been noticed that the eggs of this and other Tits are often covered with rabbit's fur or other material in the intervals of laying. Similar habits are common among birds, but it is difficult to see what end is served in this case.

THE COAL-TIT

(Parus ater).

Plate 106.

The Coal-Tit differs from the Great Tit in its smaller size and in its lack of the black median line down the breast and under-parts. The white on the nape of the neck is a distinctive feature.

This Tit is resident and common in suitable localities throughout the British Isles, and is especially abundant in Scotland. It is *par excellence* the Tit of the forest depths, and is less often seen about gardens than are its allies the Great and Blue Tits. Its feeding habits have already been referred to.

The nest is usually in a hole in a tree; but a crevice in a wall or bank, the foundations of a Crow's nest, or even the hole or burrow of a small mammal may at times be used. Moss, wool, hair, feathers, and other soft materials are employed. The seven to eleven eggs are white, with reddish spots.

Both the English and the scientific names refer to the general darkness of the plumage, and there is no reason why the former should be written 'Cole,' as is so often done.

THE MARSH-TIT

(Parus palustris).

Plate 107.

The Marsh-Tit's habits do not differ widely from those of its allies, but it is rather partial to damp localities—woods in the neighbourhood of marshes or along a river-

Plate 106.

COAL-TIT—*Pa'rus at'er.*

Length, 4·25 in.; wing, 2·4 in.

[PAS'SERES: Par'idæ.]

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Plate 107.

MARSH-TIT—*Pa'rus palus'tris.*

Length, 4·5 in.; wing, 2·45 in.

[PAS'SERES: Par'idæ.]

2 L 298

bank. It is by no means confined to such situations, however. It is not uncommon, although rather local, over most of England and Wales. In Scotland it is scarce and very local, and is almost unknown in the northern half. It is rare in Ireland.

The situation of the nest is a hole, sometimes made by the birds themselves, in a tree or a bank. The former site is more frequently chosen, and is often a willow or an alder. The nest is made of similar materials to that of the Coal-Tit, but down of the willow-catkins is often added to the lining. The five to eight eggs are spotted with a darker red than those of the Coal-Tit.

The bird itself is readily distinguished by the absence of white on the nape and of black below the cheeks. Altogether it is the plainest of the Tits in appearance. Like the other Tits, it is practically resident within our area, the roving bands of various species of Tits found in winter probably undertaking little more than local movements. Like the others, too, it has a British race, which is to some extent separable from the continental variety. The continental forms tend to be brighter in plumage than the British races.

[A bird called the Willow-Tit, which is scarcely to be distinguished in the field from the British Marsh-Tit, has recently been discovered in parts of these islands; but the information about it is as yet very incomplete. A point in dispute is whether the Willow-Tit is but another race of the Marsh-Tit, or whether it is a race of another species not otherwise represented in our area. The latter status is claimed for it by many, apparently with good reason. But as matters stand at present, it would be premature to regard it as the representative of a new British species.]

THE BLUE TIT

(Parus cæruleus).

Plate 108.

The Blue Tit is the most generally distributed member of the group in the British Isles, and is one of the most familiar of our native birds. It is rather local in the extreme north of Scotland, and absent from the more outlying islands; otherwise it is abundant throughout the area in all suitable places. A considerable amount of autumnal immigration takes place on our eastern seaboard; but the species is, like its allies, mainly resident.

The bright blue in the plumage is very noticeable, and the dark streak through the eye is a ready guide to identification. Altogether it is a fine, handsome little bird, and quite unmistakable. In habits it resembles the other Tits already described.

A hole in a wall or tree is the usual nesting situation, but all sorts of sites are on record. Sometimes these strike us as very comical and absurd; but we must remember that however incongruous a nest in a letter-box or lamp seems to us, from the bird's point of view such a place may be eminently suitable for the purpose. The human use of the place obviously cannot enter into its calculations. As such 'unusual' sites are all, more or less, artificial counterparts of the normal, natural site, they are more curious than interesting.

The nest proper consists of moss, wool, hair, feathers, &c. The eggs are of the usual type, but the spots are noticeably small. The clutch numbers seven or eight as a rule; the much larger clutches sometimes found are

Plate 108.

BLUE TIT—*Pa'rus cæru'leus.*

Length, 4·3 in.; wing, 2·4 in.

[PAS'SERES: Par'idæ.]

2 L 300

Plate 109.

LONG-TAILED TIT—*Acred'ula caudā'ta.*

Length, 5·5 in. ; wing, 2·45 in.

[PAS'SERES : Par'idæ.]

probably the joint produce of a couple of hens. In defence of its nest this little bird is very bold. The snake-like hissing sound which it emits in the darkness of its hole is no mean protection against ignorant persons and other intruders on its haunts.

THE CRESTED TIT

(Parus cristatus).

The Crested Tit is scarcely found in our area except in some old forests of the central Highlands. The name indicates the characteristic feature of the bird, and the habits are like those of its commoner congeners. As well as nesting in holes, it sometimes occupies old nests of other birds. The white eggs are boldly marked with light-red spots or zones.

THE LONG-TAILED TIT

(Acredula caudata).

Plate 109.

Owing to its long tail and other differences, this Tit is kept apart from the typical Tits in a genus of which it is the sole British representative. The long tail and the conspicuous, variegated plumage are fully sufficient for identification. Apart from these and a few minor features, this bird is very Tit-like in appearance. It is also not widely different from the Tits in general habits.

The Long-tailed Tit is a not uncommon resident over most of England, Wales, and Ireland. In Scotland it is much more local, and is unknown, except as a wanderer,

in some of the northern districts and islands. The species does not appear to have any regular migrations, although roving in winter like our other Titmice. Several geographical races occur in different parts of Europe. Our own occupies the adjacent regions of the mainland as well as the British area.

In nesting habits this bird differs markedly from the typical genus. A hole is not used, but an elaborate domed nest is built in a bush, hedge, tree, or similar situation. Its general shape—very high for its circumference, and very large for the size of the owner—is well shown in the accompanying plate. The opening is a small hole high up in one side. The sitting bird bends its tail over its back, so that the point projects beyond its head and through this hole. The 'Bottle-Tit,' as this bird is sometimes called, uses moss, lichens, wool, spiders' webs, and other soft and delicate materials. For a lining it adds a great number of feathers. Macgillivray makes the following remarks about the feathers of a particular nest: 'On being counted, the number was found to be two thousand three hundred and seventy-nine. They belonged chiefly to the Pheasant, Wood-Pigeon, Rook, and Partridge; but there were also feathers of the breast of the Missel-Thrush, of the Yellow-Bunting, and of several other birds.' The seven to ten or more white eggs are marked with light red, usually in spots or streaks. Two broods are often produced. Several observers have recorded finding four adults to one nest, as if two pairs sometimes shared a home.

Plate 110.

BEARDED-TIT OR REEDLING—*Panu'rus biar'micus.*

Length, 6·75 in.; wing, 2·25 in.

[PAS'SERES: Panu'ridæ.]

FAMILY, PANURIDÆ (REEDLINGS).

THE BEARDED-TIT, OR REEDLING

(Panurus biarmicus).

Plate 110.

There is a certain superficial resemblance in form between the species just described and this bird; but the rich colouring of the latter makes it unmistakable. Nor is there evidence of very close relationship, and the title 'Bearded-Tit' is certainly a misnomer. 'Bearded-Reedling' is much to be preferred, but general custom in such matters is stronger than right and wrong. 'Reed-Pheasant' is a Norfolk name. The epithet 'bearded' refers to a very conspicuous feature of the adult male's plumage. Immature and female birds lack the 'beard,' and are duller in plumage generally, with a few other small differences in pattern. The shape of the longish tail is a characteristic of the species.

The Bearded-Reedling was formerly found in many of the marshy districts of the south, east, and Midlands of England. Drainage and persecution have altered that, and the species is now an uncommon resident in the Norfolk Broads, and is otherwise unknown in our area, except as a very unusual wanderer to other districts in the south of England. The total number of nests on the Broads was estimated at two hundred in 1838 and at thirty-three in 1898, showing a reduction of about 83 per cent. in sixty years. During the last decade, however, the numbers have again increased under the vigilant protection now afforded in most parts of that magnificent East Anglian bird-haunt.

The nest is a cup of reed-flags and flat grasses, lined with reed-flowers, and placed among the sedge or reeds close to the water. The five to seven eggs are very glossy; they have a few reddish-brown streaks on a creamy ground, the whole effect being very delicate. Two females sometimes lay together in one nest, and a single pair produces two broods in a season.

The nestlings are of the usual Passerine type, but we may mention one special feature. Inside the mouth are four conspicuous whitish spots. Similar markings of various patterns and colours are found on the tongue and other parts of the mouth of many Passerine nestlings. Attention has only recently been given to the point, and it has not yet been fully studied. We know, however, that such markings tend to occur in those species whose nests are in deep shade; in a thick reed-bed, for instance, as in the present case. This is strong evidence in favour of the theory that the markings are guides for the parents at feeding-time. In a photograph of a Bearded-Tit's nest, with six young ones gaping for food, six groups of white spots stand out from the surrounding darkness.

FAMILY, CINCLIDÆ (DIPPERS).

THE DIPPER, OR WATER-OUSEL

(Cinclus aquaticus).

Plate 111.

Any one who knows the Highland 'burns,' running swiftly over their rock-strewn beds, must know the Dipper, a little, rather 'dumpy' bird, with a conspicuous white breast and an otherwise dark plumage. Usually

Plate III.

DIPPER OR WATER-OUSEL—*Cin'clus aquat'icus.*

Length, 7 in.; wing, 3·6 in.

[PAS'SERES: Cin'clidæ.]

it may be seen flitting from stone to stone in a jerky manner, alighting in characteristic fashion. If we are lucky we may see it exercise its remarkable power of walking into and under the water. Down it walks, quite unconcernedly, and moves about the bottom searching for the aquatic organisms that form its food. Up it comes, and shakes its plumage dry in an instant. At another time it sinks from the surface where it was momentarily floating. Exactly how it keeps under water is a mystery, just as in the case of the self-submerging of the Dabchick and other Water-Fowl. Any force that is exerted vertically seems wholly inadequate to keep a light body like a bird wholly under water.

That a Passerine bird should have taken to an aquatic mode of life is rather remarkable. It is yet another instance of a bird modifying its habits to escape the competition of allied forms, and to occupy a 'vacant place in nature.' Birds of this Order exist in America which have habits intermediate between those of this species and those of the neighbouring Thrush family. These Water-Thrushes 'wade into streams and pick out minute animals from the bottom. Their plumage becomes drenched, but can be shaken dry in a moment. Certainly the Water-Thrushes have taken preliminary steps towards becoming as aquatic as the Dipper.' So writes Dr Alfred Russel Wallace.

The name 'Dipper' is certainly both suggestive and appropriate. The name 'Water-Ousel,' widely used, refers to the faint general resemblance of its plumage to that of the Blackbird and its near allies. The Dipper is found not only on almost every Scottish 'burn,' but also on many of the similar streams of Ireland, Wales, and the north and south-west of England. From the lowland counties of England it is practically absent, except in winter, when

many Dippers come to the estuaries and coasts. Some of these are from the inland hill-regions, but others belong to one of the continental races.

The Dipper is a very early nester, eggs being sometimes found in February. They may be six in number, and are plain white in colour. The nest in which they are laid is a rather large and elaborate structure of moss, grass, and the like. It is oval in shape, the greatest length being horizontal, and the opening rather low down in one side. It is not so low, however, that there is any danger of the eggs rolling out. Dry leaves form the lining. The nest naturally harmonises well with the moss-grown bank, rock, wall, or bridge against which it is fastened. Sometimes it is on an overhanging branch or *behind* a small waterfall. It is usually within a few feet of the water, but a nest has been recorded at the first-floor level of a house some yards from the bank. Two or three broods are reared; and, what is rather unusual, the same nest often serves for each brood in turn. The same site is often returned to in successive seasons. We have come across a nest which was about a foot above the water at normal times, but was carried away during a 'spate.' The next year practically the same spot was occupied, the nest being about a foot above the old site.

Any harm that the Dipper may occasionally do to trout or salmon ova is much more than compensated for, even from this one-sided point of view, by its regularly feeding on certain insects and their larvæ which are very destructive to fish-ova.

Plate 112.

SONG-THRUSH OR MAVIS—*Tur'dus mu'sicus.*

Length, 9 in.; wing, 4·6 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

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FAMILY, TURDIDÆ (THRUSHES, WARBLERS, &C.);
SUBFAMILY, TURDINÆ (THRUSHES).

THE SONG-THRUSH, OR MAVIS

(Turdus musicus).

Plate 112.

Just as the Order Passeres covers a disproportionate number of our common British birds, the family Turdidæ includes a very large proportion of the members of that Order. As far as our avifauna is concerned, the family comprises three subfamilies: Thrushes, Warblers, and Accentors, the two former very abundantly represented, the last containing only one indigenous species. The commonness and importance of so many of the members of the family render it necessary to give a score of plates; but, with the exception of two or three birds which we shall select as types, they may all be dismissed with a very brief description.

The Thrush subfamily includes the Robins, the Chats, and the typical genus. Of the last, the Song-Thrush—usually called simply 'the Thrush,' or designated by its well-known popular name the 'Mavis'—is the most convenient type for our purpose. It is scarcely necessary to remind our readers of its chief characteristics.

The spotted marking of the under-parts of this bird is very characteristic of the group, for all the members of the family show this feature in their first plumage, although most of them do not have it when mature. Many species of the typical genus, however, keep it throughout life, and may therefore be regarded as forming

the most generalised subdivision, retaining, as it were, the ancestral type of plumage.

The Thrush is found throughout the year in all parts of the British Isles except Shetland. In the Hebrides the birds are noticeably small and dark, a variation probably connected with local conditions and paralleled among the moths and butterflies of the same region. In winter a considerable amount of southward migration takes place, from the more northern parts of our area especially; and at the same time our eastern seaboard receives numbers of Song-Thrushes from northern Europe. These may often be seen arriving from a north-easterly direction at the same time as flocks of other species not resident with us in summer.

With the return of spring the birds settle down again in their usual haunts. The nest is placed in a bush or low tree, and is always recognisable. It is a rather deep cup, and is composed chiefly of grass. The characteristic lining is a layer of hardened mud or dung, finished off with a layer of decayed wood. This lining is watertight, and effectually protects the eggs when the sitting bird itself covers the open top. It is said that the lining is sometimes dispensed with in very dry seasons. The familiar eggs are blue, usually with black spots. There are from four to six in a clutch; but the larger number is uncommon, at any rate in the northern parts of our islands. Just under a fortnight is required for incubation, in which the cock takes a small share. Two or more broods are usually produced in a season.

The song of the Thrush is well known; loud and clear, it is to be heard from some high bough in every copse or plantation in spring and early summer, and even in mild winter weather. An oft-repeated series of clear, flute-like notes is a beautiful and characteristic feature.

Plate 113.

MISTLE-THRUSH—*Tur'dus visciv'orus.*

Length, 11 in. ; wing, 6 in.

[PAS'SERES : Tur'didæ ; Turdi'næ.]

The Thrush family are all 'soft-billed'—that is, they possess longish bills of no great strength. With these they eat chiefly worms and grubs, adult insects to a less extent, and fruit in season. The habit of the species of breaking snail-shells by hammering them against a stone is well known.

THE MISTLE-THRUSH

(Turdus viscivorus).

Plate 113.

Large size and big round spots are the distinguishing characteristics of the Mistle-Thrush. In habits it closely resembles its smaller and commoner congener. It feeds on worms, grubs, snails, and the like, and largely on berries in winter. Among the last named are those of the mistletoe, from which the bird takes its name; the cumbrous full form, 'Mistletoe-Thrush,' is no longer used, but is contracted to 'Mistle-Thrush.' (The spelling 'Missel-Thrush,' from the older form 'Misseltoe,' is employed by ornithologists with growing infrequency.) 'Storm-Cock,' a popular name, refers to the fact that the bird sings in winter even in inclement weather. The ordinary note is a harsh 'churr.'

The Mistle-Thrush is now generally distributed in all wooded districts of the British Isles. Formerly it was much more restricted in range, and at the beginning of last century it was apparently unknown in Ireland, where it is now common. It was also absent from the northern mainland of Scotland, over which it has since spread; but it does not inhabit the northern isles. This interesting extension of range has probably been aided, if not caused, by the great increase of plantations during the nineteenth century.

The situation of the nest is almost always in the fork of a tree, rarely in bushes, and only exceptionally on the ground or in a hole in a wall or among rocks. As often as not there is no attempt at concealment. The nest itself is made of grasses and lichens on a foundation of mud, and is lined with dry grass. There is nothing in the way of mud-lining like that in the nest of the Song-Thrush. It is a very interesting question why three closely allied birds like the Song-Thrush, the Mistle-Thrush, and the Blackbird should build different types of nests, when they inhabit the same area, are under the same conditions, and have similar habits and wants. It may be noticed, or, better, experimentally proved, that an individual bird is partly influenced by the materials which happen to be most easily procured. Nevertheless, however much it may adapt its nest to suit the supply of materials and the circumstances of the site, the nest almost invariably shows certain well-marked characteristics typical of the species. Why does a bird adhere to the species-type of nest? It is, of course, a case of inborn instinct; but we do not really know what *that* is. And why should there be a species-type at all? And why should one species-type differ from another, as in the case in point? It may to some extent be a case of allied forms avoiding competition by developing in different directions, as in the case of the Tits' feeding habits already discussed; but it is more difficult to understand the application of the principle here. The points, in fact, are very far from settled, and the psychology of nest-building is a subject of the future. Before theories can profitably be matured, further systematic study of the subject is needed. Therefore we recommend the bird-nester to study, note, and photograph nests both normal and abnormal. Hitherto

Plate 114.

BLACKBIRD—*Tur'dus mer'ula.*

Length, 10 in.; wing, 5 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

the subject has been greatly neglected, or normal nests have been studied merely as examples of workmanship, and abnormal ones regarded as 'curious' freaks.

The four or five eggs of the Mistle-Thrush have lilac and reddish-brown markings on a yellowish-white or grayish-white ground. In the south of England the bird is double-brooded, but is only single-brooded farther north. This is another subject worthy of much more attention than it has received.

The parent Mistle-Thrushes, among other birds, often swallow the excreta of their young. The excreta of most nidicolous nestlings are enclosed in jelly-like capsules, which enables the parents to lift them cleanly and bodily from the nest. Very frequently they are merely carried away and dropped, and the reason for the apparently useless swallowing habit has not been explained.

[The Redwing and Fieldfare, two northern Thrushes, are common winter visitors to our area. It has frequently been reported that these birds have remained to nest, but as yet there are no records that can be accepted as reliable.]

THE BLACKBIRD

(Turdus merula).

Plate 114.

The Blackbird is of course Shakespeare's 'Ousel-Cock so black of hue, with orange-tawny bill'; but the name 'Ousel' has now dropped out of use as regards this species, although in Germany the cognate 'Amsel' is still the ordinary name. 'Ousel,' however, survives as part of the name of the next species, and of that of the Dipper, as we have seen.

The Blackbird and the Ring-Ousel form a subdivision of the Thrush genus, and are characterised by the darkness of their plumage. Another notable point is the difference in plumage shown by the adult male and female. Anything considerable in this way is exceptional in the Thrush family, in contrast to the Finch group, where great diversity is the rule.

The Blackbird is now abundant in every part of the British Isles except a few of the bleakest islands and districts, but its spread into some of the most northern and western regions is of comparatively recent date. Some southward emigration and a great deal of immigration from north-western Europe occur in autumn, with corresponding return journeys in spring.

Bushes, hedges, low trees, piles of cut sticks, &c., are the nesting situations of the Blackbird. The nest has a lining of dry grass instead of mud, but otherwise resembles that of the Thrush. The four to six eggs have reddish-brown flecks thickly strewn on a greenish-blue ground. Unmarked eggs are sometimes seen, and a nest containing a proportion of such eggs has been found at the same spot for several successive years. Two inferences may be drawn: first, that an individual bird tends to lay eggs of the same type; second, that the same hen Blackbird returns to the same place for several seasons. Unfortunately we do not know the cock's movements; it may well have been the same pair all the time. But one would like to know whether it is the male or the female that determines the nesting locality in the case of a newly 'matched' pair.

The cock Blackbird is a fine songster and a good mimic. The loud, cackling alarm-cry of the species is well known. A characteristic trait, also, is the sharp upturning of the long tail at the moment of alighting.

Plate 115.

RING-OUSEL—*Tur'dus torqua'tus.*

Length, 10 in.; wing, 5·5 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

THE RING-OUSEL

(Turdus torquatus).

Plate 115.

The Ring-Ousel may be very roughly described as a Blackbird with a conspicuous white gorget. A comparison of the two plates will reveal numerous less conspicuous points of difference. The hen is browner than the cock, and a duller bird altogether; and the collar is narrower, especially in immature examples. The ordinary cries are harsh and the song rather monotonous.

Preferring barren, treeless places as nesting-haunts, this species is necessarily rather local in its distribution. Although sometimes breeding in the southern and eastern parts of England, it is little known as a summer bird in such places. Its chief strongholds are in the south-eastern corner of England and the mountainous parts in the north. In Wales, as in Scotland and Ireland, the larger extent of suitable country gives it a wider distribution.

Unlike the previous three species, which are all more or less resident *as species* in this country, the Ring-Ousel is almost entirely a summer visitor. Withdrawing from its breeding-haunts about the end of September, it remains for some time longer in the lowlands—to which it is therefore a 'bird of passage'—before leaving. It is again found in these places for a short time after its arrival in spring, but it soon retires to the hilly districts which it favours.

The nest may be looked for on rocky moors or bleak hillsides; the bank of some small hill-stream is a typical

haunt. The nest itself is very similar to that of the Blackbird, and is usually placed among heather or in a low bush, on a ledge or in a crevice of rock. The eggs, usually four in number, are also somewhat like those of a Blackbird, but are much more boldly and handsomely marked. The Ring-Ousel is sometimes double-brooded.

Worms, insects, berries, &c., form its food; and although it will turn fruit-stealer on occasion, its opportunities are too few to make its depredations at all serious.

THE WHEATEAR

(Saxicola œnanthe).

Plate 116.

With the Wheatear we come to the Chats, small birds which inhabit open waste ground, especially that covered with whin or broom. Of these the Wheatear is the most easily recognised. The name means 'white-rump,' and indicates a noticeable and characteristic feature. The ordinary note is the typical Chat sound, resembling the noise made by knocking two quartz pebbles sharply together. The song of the male is pleasing if not elaborate, and he is also a good mimic. Grubs and adult insects form the food.

The Wheatear is only a summer visitor to the British Isles, but it is early in its coming and tardy in its departure. The first arrivals appear before the middle of March in the south, about three weeks later in the north. Throughout the summer it is common in suitable localities over the whole of our area, even on barren islets and bleak mountain-tops. Emigration

Plate 116.

WHEATEAR—*Saxic'ola œnan'the.*

Length, 6 in. ; wing, 3·75 in.

[PAS'SERES : Tur'didæ ; Turdi'næ.]

Plate 117.

WHINCHAT—*Pratin'cola rubet'ra.*

Length, 5·25 in.; wing, 3 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

begins in August, but drags on till October, and to a slight extent for some time longer.

The nest is placed in a sheltered spot of some sort—a natural hole or crevice in a bank or among rocks, a rabbit-burrow, a hole in a wall, or even an old tin. The nest itself is loosely made of dry grass, and lined with feathers, hair, rabbit's fur, &c. The five to seven pale-blue eggs are sometimes faintly spotted with purple, but are more often plain. Two broods are reared in a season. The parents are not shy, but are restless and wary, and rarely give one any clue to the site of the hidden nest.

In autumn the new feathers have broad, buff-coloured margins, and thus alter the dominant tone of the plumage; but the pattern remains much the same. Immature birds have also a good deal of buff, and their plumage is spotted.

THE WHINCHAT

(Pratincola rubetra).

Plate 117.

This Chat is not only smaller than the Wheatear, but is also quite different in plumage. With no bird can it possibly be confused, except perhaps with the female or immature Stonechat. The adult male Whinchat has a broad white eye-streak and a large wing-patch of the same colour. In the female the wing-patch is smaller; and although the eye-streak is pale buff, it is still a good point for identification purposes, seeing that the female Stonechat has none.

Like the Wheatear, the Whinchat is a summer visitor

to the British Isles, but it does not usually appear till towards mid-April, and is correspondingly later in the north. During the summer it is widely distributed over Great Britain and the northern half of Ireland, breeding in many of the outlying Scottish isles. To the south of Ireland and some western parts of England and Wales it is chiefly known as a migrant. Like other Chats, it frequents waste lands of various kinds, showing, as the name implies, a preference for furze-covered tracts.

The nest is generally under a whin-bush, less often among grass, and is usually approached by a tunnel of over a foot in length. Owing to the nature of the cover and the careful concealment of the nest, it can rarely be found except by carefully noting the hen-bird's entry into the tunnel, about which she is very wary. Dry grass and moss outside, hair and fine grass inside, are the chief materials of which the nest is constructed. The four or five eggs are greenish blue, spotted with reddish brown, especially towards the larger end. Two broods are reared as a rule.

THE STONECHAT

(Pratincola rubicola).

Plate 118.

Often, as we chance to pass some corner of waste ground, our attention is attracted by a sound like that made by two pebbles sharply brought together; and, turning, we see a brightly coloured little bird boldly perched on a spray of furze a few yards away. Bold but restless, he continually changes his perch, but shows a marked pre-

Plate 118.

STONECHAT—*Pratin'cola rubic'ola.*

Length, 5·25 in.; wing, 2·5 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

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ference for the most conspicuous points. The most noticeable features of the cock Stonechat's plumage are the shiny black head, the incomplete white collar, the bright rufous breast, and the white wing-patch. On account of the first of these characteristics the name Blackcap is often given to this species in the north of Scotland, where the Warbler which is the rightful bearer of that name is unknown. His song is sweet but brief. The hen-bird is a very plainly coloured bird. She may be distinguished from the hen Whinchat by her mottled black throat, and by the absence of a distinct eye-streak.

Although it is almost entirely insectivorous, the Stonechat remains with us throughout the winter, being one of the few 'soft-billed' birds which do so. Its numbers greatly diminish on the approach of winter, however. Its near ally, the Siberian Stonechat (*Pratincola maura*), has wandered to our coasts during the autumn migration season.

Any attempt to locate the nest from the erratic movements of the male is doomed to failure, but a very careful watching of his inconspicuous mate may sometimes lead to its discovery. The nest is usually on the ground or near it, and is carefully concealed under a gorse-bush. The hen is careful not to betray its position by flying directly to it, but approaches it for some distance along the ground.

Large and carefully built, the nest is chiefly composed of dry grass and moss, and is lined with feathers, hair, and other materials. The eggs, five or six in number, are bluish green, marked with reddish brown. Two broods are reared.

THE REDSTART

(Ruticilla phœnicurus).

Plate 119.

The name 'Redstart' means 'Redtail,' and is the appropriate title of this genus. In all the plumages—and this group is exceptional among the Thrushes for the difference in plumage between male and female—the central tail-feathers are bright red. The tail is frequently brought into prominence, also, by the 'Wagtail' habit of the birds. This is not nearly so marked as in the Wagtails themselves, and the movement, moreover, is from side to side, not up and down.

The adult male is a quite unmistakable bird. Immature and female birds might perhaps be confused with the corresponding members of the Black Redstart species. This bird, however, is a rather uncommon migrant, and that only to a part of our area. For this reason it is quite unnecessary to prefix the word 'Common' to the name of the species now being described.

In Germany, where both kinds are common, the Black Redstart is called the 'House Redstart' and our bird the 'Garden Redstart.' This indicates a difference in their nesting habits. Our bird sometimes nests on the end of a house, but more often chooses a hole in a tree or wall. The nest itself is loosely made of grass, moss, roots, and the like, with a lining of hair and feathers. The six eggs are pale blue, sometimes with reddish specks, but more often plain.

The Redstart is a summer visitor to our islands, remaining from mid-April till September. During that

Plate 119.

REDSTART—*Ruticil'la phœnicu'rus.*

Length, 5·4 in. ; wing, 3·1 in.

[PAS'SERES : Tur'didæ ; Turdi'næ.]

Plate 120.

REDBREAST OR ROBIN—*Erith'acus rubec'ula.*

Length, 5·75 in.; wing, 3 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

period it is widely distributed over Great Britain except in the extreme south-west of England and the more northern part of Scotland, but the species tends to be rather local. It also nests in a few Irish localities.

THE REDBREAST, OR ROBIN

(Erithacus rubecula).

Plate 120.

The Robin-Redbreast is perhaps the best known of all our birds, for no one can mistake him, and his bright, merry looks and fearless and confiding ways make him a general favourite. And yet it is astonishing how often one is informed that his mate lacks the bright-red breast! In reality she is slightly duller in plumage, but no more. But when one says so, the sober-hued Hedgesparrow will as likely as not be triumphantly pointed out as a hen Robin.

The Redbreast is found throughout the year in all but the most barren parts of the British Isles. It does not yet nest in the Shetland group, and only recently has it done so in some of the other Scottish isles and even in some mainland localities, its spread being probably connected with the increase of plantations.

Any long description of the general and nesting habits of the Robin would be superfluous. The nest is placed in a hole in a bank, wall, or hollow tree, or in some similarly sheltered situation. 'Curious sites' may, of course, be found without number. Moss and dead leaves outside, hair and feathers inside, are the usual materials, but unexpected articles are sometimes made use of. The five to seven eggs are white, usually blotched with pale

reddish brown. Two or more broods are reared in a season, the first clutch being frequently laid in March. The full-grown young are often driven away by the old birds, for each pair likes to keep its own ground, however small in area, free from others of its kind. It is notoriously pugnacious in defence of its rights.

THE NIGHTINGALE

(Daulias luscinia).

Plate 121.

The Nightingale is about the size of the Robin, but of more slender build. Its plumage is dull and plain, but it makes up for this by the beauty of its song. As every one knows, the Nightingale's song is to be heard for a few weeks in early summer, more particularly on still nights, but also during the day. It has become a sort of convention in England, less so on the Continent, to regard the Nightingale's music as the very acme of bird-song. Personally, we agree with those who consider that some of our Warblers, for instance, are superior as songsters. The Nightingale has many displeasing notes in its song, and the whole performance lacks brilliance and finish. Where it really reaches perfection is in the magnificent, oft-recurring series of clear, flute-like notes. Let us qualify our heresy. Had we first heard the Nightingale with no preconceived ideas about it we should have ungrudgingly called it a magnificent songster, although never the very finest. But too extravagant praise heard beforehand resulted in disappointment at the time, and for us the Nightingale remains for ever an impostor! Yet, we admit, there are those with good right to judge, and little heed of conventional ideas, who

Plate 121

NIGHTINGALE—*Dau'lias luscin'ia.*

Length, 6·5 in.; wing, 3·35 in.

[PAS'SERES: Tur'didæ; Turdi'næ.]

Plate 122.

WHITETHROAT—*Syl'via cine'rea.*

Length, 5·5 in.; wing, 2·8 in.

[PASSERES: Tur'didæ; Sylvii'næ.]

award the palm to the Nightingale. The natural conditions under which it sings, however, are very greatly in favour of making the best possible impression on the listener. It does not thrive in captivity. The ordinary vocabulary is startling in its harshness.

Amusing discussions take place from time to time in the columns of provincial newspapers as to where the Nightingale sings or does not sing. As a matter of fact, its British range is very limited. It is only of rare occurrence in any part of our area except England and a small part of Wales. In the northern and extreme south-western counties of England it is also practically unknown. Unauthentic records from outside its proper range are usually due to the performances of some of our less familiar Warblers.

The Nightingale arrives early in April, and begins to nest at the beginning of May. The nest, made of dead leaves, is usually on or near the ground on the sunny side of a thick bush or hedge. The four to six eggs are usually of a dark, cloudy brown, but a bluish-green type with reddish-brown blotches also occurs.

SUBFAMILY, SYLVIINÆ (WARBLERS).

THE WHITETHROAT

(Sylvia cinerea).

Plate 122.

With the Whitethroat we come to the Warblers. These form a group which is well represented in the British Isles except in the most northerly portions. The various species inhabit ground thickly covered with rank vegetation of various types. They are mainly insectivor-

ous in diet, and therefore practically all are only summer visitors to our area.

The various Warblers show a great deal of similarity both in appearance and in habits. Most of them are of inconspicuous but by no means dull colours, and there is generally little or no difference in the plumage of the sexes. Nor is there usually any very marked divergence at different seasons, although there are two distinct moults in the year. The Warblers are all of very small size, and built on fine and dainty lines. A good development of singing powers is the rule. Many have but a short refrain, pleasing but not elaborate, while others are among our most accomplished songsters. The present species falls within the former category.

The Whitethroat is large for a Warbler, and the conspicuous feature of its plumage is indicated by its name. In summer it is abundantly and generally distributed in all suitable parts of the British Isles except towards the north of Scotland. It arrives about mid-April in the south, later in the north, and quits our shores early in September.

The nest is occasionally at some distance from the ground, normally close to it. A thick bank of nettles is a typical situation, but low bushes and hedges are often used. The nest itself is a rather deep cup slightly built of grass, and lined with hair and fine roots. The four to six eggs have a yellowish-white ground, thickly covered with olivaceous specks and lilac under-marks. The general effect is very variable, however.

Plate 123.

GARDEN-WARBLER—*Syl'via horten'sis.*

Length, 5·75 in.; wing, 3 in.

[PAS'SERES: Tur'didæ; Sylvii'næ.]

THE LESSER WHITETHROAT

(Sylvia curruca).

The Lesser Whitethroat is a decidedly smaller bird than the last, and, among other points of difference, it lacks the chestnut margins on the wing-feathers. It is a summer visitor in smaller numbers to the south, east, and centre of England and Wales. In the west and north, as well as in the south of Scotland, it is rather uncommon and local. To Ireland and the north of Scotland it is an exceptional wanderer. The nest is shallower than the Whitethroat's, and is very frequently placed in a hedge. The five or six creamy eggs have yellowish-brown blotches and gray under-markings.

THE GARDEN-WARBLER

(Sylvia hortensis).

Plate 123.

From the end of April to late in September this little Warbler is common over the greater part of England and Wales, the southern half of Scotland, and many regions of Ireland. The name has no very great appropriateness, for the species is not more addicted to gardens than many of its allies, and it is equally satisfied by many other haunts. Low bushes are the usual nesting-places, and the nest is rarely placed many feet from the ground. Dry grass and moss are the chief materials of the nest, and hair the principal constituent of the lining. The four or five eggs are white in ground-colour, blotched and clouded with various shades of brown and green.

They are laid about mid-May, and incubation takes rather under a fortnight. Only one brood is, as a rule, produced in a season.

The song of this Warbler is of the highest order, and we have heard more than one experienced naturalist describe it as our finest songster, the Nightingale not excepted; and, so far as these two are concerned, we are personally inclined to favour the Warbler's claim.

THE BLACKCAP

(Sylvia atricapilla).

Plate 124.

The most obvious characteristic about this Warbler is the 'cap' of glossy black in the cock, and rufous brown in the hen. A brown cap is visible on the young birds before they leave the nest, and the difference between the sexes in this respect becomes apparent in the first autumn. Apart from the cap, the species is very similar to the Garden-Warbler, and is of almost the same size.

The Blackcap is also a summer visitor to the British Isles, except that a few occasionally pass the winter with us. Its arrival in spring is rather earlier than that of the preceding species.

The range of the two within our area is very much the same. In most localities both birds may be found, but there is a tendency for particular spots to be given up more or less completely to one or the other. The Blackcap, however, is the more local of the two.

The general habits of the two are alike, and the Blackcap's song is at least equal in merit to that of the Garden-Warbler. The nesting habits are also much

Plate 124.

BLACKCAP—*Syl'via atricapil'la*

Length, 5·75 in.; wing, 2·75 in.

[PAS'SERES: Tur'didæ; Sylvii'næ.]

Plate 125.

GOLDCREST—*Reg'ulus crista'tus.*

Length, 3·6 in.; wing, 2·1 in.

[PAS'SERES: Tur'didæ; Sylvii'næ.]

the same; the eggs are slightly smaller, and a beautiful type tinged with red occurs. As with most Warblers, the male takes a considerable share in the duties of incubation. Two broods are reared in a season.

THE DARTFORD WARBLER

(Sylvia undata).

The Dartford Warbler is found very locally on the heather and gorse covered commons of some of the eastern and southern English counties, where it is resident. The four or five eggs are greenish white, with olivaceous or reddish-brown markings. Two broods are reared, 'the second nest of the season being generally more flimsy than the first.'

THE GOLDCREST

(Regulus cristatus).

Plate 125.

The title Goldcrest is now coming into general use, even in books, as the name for the species to which the cumbrous and inaccurate name Golden-crested Wren was formerly more often applied. This is but another of the Warblers which are popularly termed 'Wrens,' apparently on account of their small size. This characteristic belongs in full degree to the Goldcrest, which is indeed the smallest of European birds. The bright yellow crest, the greenish plumage, and the shrill piping note are other noticeable points.

The Goldcrest nests throughout our area wherever

plantations of conifers are to be found. With the increase of these on the Scottish mainland the species has become more numerous there; but the outlying islands afford no suitable haunts. This Warbler is notable in being not only a resident but a *winter* visitor to our islands. In some autumns huge immigratory waves are recorded on our east coasts; in others the irruptions are smaller or less noticeable.

Coniferous and other woods, as we have said, are the habitat of this bird. It generally places its nest on the under-side of a branch, but slightly different situations are sometimes used. The typical situation and the almost spherical shape are well seen in the accompanying plate. The materials used are moss, wool, spiders' webs, lichens, and others of a similar nature, while feathers are used for the lining. The five to eight or more eggs are laid early in April, as a rule. They are buffish white, with small reddish-brown specks.

THE WILLOW-WREN

(Phylloscopus trochilus).

Plate 126.

Taken all in all, the Willow-Wren is perhaps the commonest and most familiar of British Warblers. It is common even in the north of Scotland, although not in the outlying isles, and there are few suitable parts of our area in which it is not abundant in summer. It is found even in the London parks. It arrives early in April in the south, three or four weeks later in the north, and remains till mid-September.

The Willow-Wren is the common representative of a well-marked group of small Warblers, the prevailing colour

Plate 126.

WILLOW-WREN—*Phyllos'copus tro'chilus.*

Length, 4·9 in.; wing, 2·7 in.

[PAS'SERES: Tur'didæ; Sylvii'næ.]

Plate 127.

CHIFF-CHAFF—*Phyllos'copus ru'fus.*

Length, 4·6 in. : wing, 2·35 in.

[PAS'SERES : Tur'didæ ; Sylvii'næ.]

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of whose plumage is greenish yellow—dark above, very light below. A pale eye-streak is a common characteristic. In the common names of two members of the Warbler group the word 'Wren' is erroneously introduced—small size is again the only excuse for such a title. There is no very great development of song.

The nest is usually on the ground among long herbage or under a thick bush, but sometimes a few feet from it. Holes in walls are occasionally used. The nest itself is notable in being domed; it is loosely built of dry grass, and is lined with feathers.

The six to eight eggs are creamy white, usually with rusty-red markings. Laying begins early in May in the south, and two broods are reared there.

THE CHIFF-CHAFF

(Phylloscopus rufus).

Plate 127.

The Chiff-Chaff is rather smaller and duller than the Willow-Wren, and has very dark legs. The 'song,' heard in early summer, is a monotonous repetition of two notes, as indicated by the bird's name.

The Chiff-Chaff does not penetrate into the northern half of Scotland, and is rather scarce and local even in the south of that country, and in much of the east and north of England. Throughout the rest of England and Wales and the whole of Ireland it is common in summer, and a few members of this species often remain through the winter in some mild districts. Those that leave us return very early, often appearing at the beginning of March.

In general habits and nesting proclivities the Chiff-Chaff resembles the Willow-Wren. The six eggs are rather more darkly spotted.

THE WOOD-WREN

(Phylloscopus sibilatrix).

Plate 128.

This species is a somewhat larger and more heavily built bird than either of the two preceding members of the genus.

It is the latest of the three to arrive, mid-April to September being the length of its sojourn in the south, a shorter period in the north. During the summer the Wood-Wren is widely distributed over Great Britain, but is less numerous towards the north. In Ireland it is more uncommon. Everywhere it is very local, but that is in a great measure due to the nature of the haunts it prefers. These are woods, as the name implies, especially those of oak and beech trees.

The nesting habits are on the whole similar to those of the Willow-Wren and the Chiff-Chaff. Wooded banks, however, are preferred, even though undergrowth or other cover be scant. The nest is usually on the ground, often in a hollow. It is of the usual domed type, but feathers are not used for lining purposes. The eggs are from five to seven in number, and are white in colour, with numerous spots or zones of purplish brown and violet gray.

Plate 128.

WOOD-WREN—*Phyllos'copus sibila'trix.*

Length, 5·2 in.; wing, 3·1 in.

[PAS'SERES: Tur'didæ; Sylvii'næ.]

Plate 129.

SEDGE-WARBLER—*Acroceph'alus phragmi'tis.*

Length, 5 in. ; wing, 2·5 in.

[PAS'SERES : Tur'didæ ; Sylvii'næ.]

THE SEDGE-WARBLER

(Acrocephalus phragmitis).

Plate 129.

The Sedge-Warbler, or Sedge-Bird, is a Warbler of fair size which frequents the reed-beds of slow-running streams. There it lives a great part of its life in comparative retirement, thanks to the excellent cover it enjoys, and it would not come much under our notice were it not for its powers of song. It is not its own babbling song which is particularly worthy of remark, but its imitations of the songs of other birds. One has only to remain still in its haunts, either by day or by night at the proper season, to be delighted with the beautiful medley of sound which the hidden songster pours forth. First one bird's song and then another's is reproduced, and, as a rule, the mimicry is wonderfully accurate.

The origin of the imitative song, so well illustrated by this species, is rather obscure, and many interesting points arise which cannot at present be answered. The true song of a species is instinctive and inborn, and varies little; if it does so at all, it is in all probability more with the region than the individual. In the case of mimicry it is almost certainly only the imitative faculty that is inherited. This would explain the great individual variation in both the degree and the nature of this imitative song.

Sometimes we may catch a glimpse of the singer, and with care and patience may follow up his movements. But the circumstances are unfavourable for the observer. Should we succeed in finding the nest, it is likely to be

concealed among the reed-stems of the lower branches of a bush, or even in a hollow in the ground. Exceptionally, it is at some height from the ground. Hair and sometimes feathers are used for the lining of the cup-shaped structure of moss and coarse grasses. The five or six dull-yellow eggs are mottled with yellowish brown, and are often finely scrolled with black.

THE REED-WARBLER

(Acrocephalus streperus).

Plate 130.

The Reed-Warbler, or 'Reed-Wren,' is an allied bird of very similar habits. The absence of light and dark streaks from the crown, and the fact that the rump is chestnut-coloured, are guides for the identification of this species.

It inhabits the same sort of damp localities as the Sedge-Warbler, but, like that species, it is not altogether restricted to them. Its British range, however, is much more limited—suitable parts of England and Wales, excluding the extreme north and south-west. In Scotland and Ireland it is unknown.

Trees are not infrequently resorted to for nesting purposes, but reed-beds are the more usual situation. In the latter case the nest differs from that of the Sedge-Warbler in being suspended. The grass and moss of which it is made are woven round several adjacent reed-flags, so that the structure is borne upwards with their growth! In this situation the nest might seem to be at the mercy of the wind; but the deep, cup-like shape prevents possible accidents to the contents. When the

Plate 130.

REED-WARBLER—*Acroceph'alus strep'erus.*

Length, 5·25 in. ; wing, 2·5 in.

[PAS'SERES : Tur'didæ ; Sylvii'næ.]

Plate 131.

GRASSHOPPER-WARBLER—*Locustel'la næ'via.*

Length, 5·4 in. ; wing, 2·4 in.

[PAS'SERES : Tur'didæ ; Sylvii'næ.]

nest is in a tree it is attached to several twigs in a similar manner.

Wool and hair are used for the lining. The four or five eggs are greenish white in ground-colour, heavily blotched with gray, olive, and black.

THE MARSH-WARBLER

(Acrocephalus palustris).

The Marsh-Warbler is scarcely distinguishable from the Reed-Warbler, and is of similar habits. Its eggs are much whiter in ground-colour. It is apparently a very uncommon summer visitor and nester in a few English districts.

THE GRASSHOPPER-WARBLER

(Locustella nævia).

Plate 131.

This bird takes its name from its curious 'reeling' cry; but for which it would be little noticed, as it is of very skulking habits. A markedly fan-shaped tail is one of the characteristics of its genus. The plumage of this species closely resembles that of the Sedge-Warbler, a rather smaller bird. Its near ally, Savi's Warbler, closely resembles the Reed-Warbler, a congener of the Sedge-Warbler. This seems almost too much for mere coincidence, and reminds us of a tropical instance in which a number of closely allied species, each inhabiting a separate island, mimic in plumage a corresponding series of birds inhabiting the same island. But in that case the members of

the mimicking genus are weak birds, and those of the other genus are strong. The object is thus clear, as in the case of the Cuckoo and the Hawk; but no such reason is known for the mimicry between these two genera of Warblers.

From mid-April to September the Grasshopper-Warbler is generally distributed in suitable localities over England, Wales, and Ireland. In Scotland it is more local, and decreases and becomes unknown towards the northern portions. Overgrown waste lands, dry or marshy, are the favourite haunts of the bird.

The nest is usually placed among long grass or herbage, or in a hedge. It is a well-built, deep cup of moss and dry grass, lined with fine pieces of the latter. The five to seven eggs are pinkish white in ground-colour, with spots of reddish brown, often forming a zone. Two broods are sometimes reared in a season.

SAVI'S WARBLER

(Locustella luscinioides).

Savi's Warbler has already been mentioned. It formerly nested among the sedges and rushes in some of the English fen districts, but drainage has driven it from these haunts. 'The deep, cup-shaped nest is composed of interwoven sedge-blades, and may be compared with that of a Crake in miniature.' The eggs are closely speckled with ash brown and violet gray on a white or buffish ground.

Plate 132.

HEDGESPARROW—*Accen'tor modula'ris.*

Length, 5·5 in. ; wing, 2·75 in.

[PAS'SERES : Tur'didæ ; Accentori'næ.]

SUBFAMILY, ACCENTORINÆ (ACCENTORS).

THE HEDGESPARROW

(Accentor modularis).

Plate 132.

The last bird on our list is the sole representative of the third subfamily of the Turdidæ. The name 'Hedge-sparrow' is partly an allusion to its habits, and partly to the fact that it is a common, smallish bird of chiefly dull-brown plumage. These are its points of resemblance to the true Sparrow; real affinity or great similarity does not exist. A glance at the respective beaks of the two birds is decisive. Some have ventured to anglicise the scientific name, and dub the species the 'Hedge-Accentor.' Such a proceeding we applaud with regard to the Alpine-Accentor, an allied species which sometimes wanders to our shores; but that a common bird of our hedgerows should be weighted with such a name is ridiculous; the misnomer is preferable. 'Dunnock' is a frequent popular title.

The Hedgesparrow is found all the year round in all suitable parts of the British Isles, even in Orkney, but not in some of the other outlying groups. In autumn there is a considerable influx on the east coast, and a return journey in spring. The food consists of insects when these are obtainable. The short song may be heard throughout a great part of the year.

The nest is usually near the ground, in a hedge or bush; sometimes among ivy or in similar situations. It is a shallow cup of roots and moss, lined with wool and hair. It is generally very ill-concealed, and falls a sadly frequent prey to bird-nesting boys. Cuckoos often victimise

this species; but, as a larger proportion of Hedgesparrows' nests are discovered than of the better concealed nests of other birds, the relative frequency of this victimising is probably more apparent than real. Moreover, the fact that the Cuckoo's egg rarely matches the four to six plain light-blue eggs of the rightful owner of the nest impresses the apparent relative frequency upon the mind.

Two or three broods are reared each season by a pair of Hedgesparrows.

With this humble species we conclude the great Order Passeres and our account of the common nesting-birds of the British Isles.

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